CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

# REPORT

OF THE

# MEDICAL OFFICER OF HEALTH

ON THE

## Sanitary Condition of Newcastle-upon-Tyne,

WITH

## TABULAR RETURNS OF THE SICKNESS AND MORTALITY

## DURING THE YEAR 1885,

TOGETHER WITH

AN ANALYSIS OF THE MORTALITY DURING 1874-83; THE RETURNS OF THE HOUSE-TO-HOUSE INSPECTION; AND AN ACCOUNT OF THE DOMESTIC DISTRIBUTION OF WATER IN THE CITY.

Newcastle-upon-Tyne:
ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

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TO MR. ALD. THOS. WILSON, J.P., CHAIRMAN OF THE SANITARY COMMITTEE OF THE CORPORATION OF NEWCASTLE-UPON-TYNE.

Sir,

I beg to present herewith my Thirteenth Annual Report on the Sanitary Condition of Newcastle-upon-Tyne, viz.:—that for the year 1885.

In addition to the Vital Satistics of the year, a review is given of the mortality of the decade immediately prior to the date of the recent adoption by the Registrar General of his altered classification of diseases and other causes of death.

The present Report also includes sections on two other subjects not dealt with in former issues of this series, viz. :—The results of the House-to-House Inspection, concluded last year; and the Domestic Distribution of the Water Supply of the City.

The Statistics, especially of the last two sections, represent a great deal of work, into which the best energies of the Health Department have been cordially put. I take this opportunity to acknowledge the services of the Chief Inspector, to whom, for general assistance and supervision of many of the details of the House-to-House Inspection, I have been much indebted; of the District Inspectors, each of whom was immediately responsible for the work of the House Inspectors, and who himself inspected the residences of the higher class in his own section of the City; of the House Inspectors, who gave satisfaction; and of the Clerks, whose duty it has been to register the results of the Inspection, and prepare the Tables and calculations for the Report.

As the serious depression in trade, and the consequent poverty of a large part of the community, has formed, perhaps, the principal theme of public attention and sympathy during the past winter, some remarks on the health of the sufferers from the "Distress" may be looked for. The noteworthy absence of Typhus—a disease commonly regarded as one of the immediate results of want—is mentioned in the Report, and is a mercy for which we have great reason to be thankful. The effects of privation, such as has been and is still being felt by our working-class population, are, however, more remote than immediate, and cannot be estimated for some time to come.

I have the honour to be,
Sir,
Your obedient Servant,
HENRY E. ARMSTRONG,
Medical Officer of Health.

*Health Department, Town Hall,*
*Newcastle-upon-Tyne,*
*13th April*, 1885.

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## ERRATA.

Page 20, Measles, line 9, for "details, the sanitary regulations," *read* "details for the sanitary regulations."

Page 21, lines 27 and 28, for "a schoolmaster's and teacher's" *read* "schoolmasters and teachers."

Page 58, line 13, after the word "footnote" *add* "on the previous page."

Page 73, line 18, for "employees" *read* "employés."

Page 75, line 2, for "guaged" *read* "gauged."

Page 79, line 19, for "In" *read* "For."

Page 83, lines 21 and 22, for "The to supply" *read* "That supplying."

# CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

# REPORT, 1885.

## (A.)—GENERAL STATISTICS.

Births and Deaths (all causes).

DURING the 52 weeks ended 2nd January, 1886, 5,848 births and 3,984 deaths have been registered in the City. The births represent a rate of 38·2 and the deaths a rate of 26·0 * per 1,000 of a population of 153,209 at all ages, as estimated by the Registrar General to the middle of the year.

The following is a Table of the recorded rates of mortality for previous years —

RATES OF MORTALITY PER 1,000 POPULATION OF NEWCASTLE-UPON-TYNE.

| A.D. | Rate per 1,000. |
|---|---|
| 1868 | 27·1 |
| 1869 | 27·2 |
| 1870 | 25·4 |
| 1871 | 32·2 |
| 1872 | 26·3 |
| 1873 | 30·1 |
| 1874 | 29·2 |
| 1875 | 26·1 |
| 1876 | 22·7 |
| 1877 | 22·3 |
| 1878 | 23·7 |
| 1879 | 23·5 |
| 1880 | 22·3 |
| 1881 | 21·7 |
| 1882 | 23·0 |
| 1883 | 25·4 |
| 1884 | 23·5 |
| 1885 | 26·0 |

---

* The population of Newcastle, on which the rates of birth and death are calculated, is that published by the Registrar General. It is estimated on the hypothesis that the rate of increase in the last intercensal period has been maintained since 1881. As stated by the Registrar General in his weekly returns for February 1886, and subsequently, there are reasons for believing that the population is underestimated; and that if the population be estimated by the increase of inhabited houses on the rate-books, the rates for 1886 are overstated by about one-twelfth. This rule, applied to the returns for the year 1885 gives a Death-rate of 23·8 per 1,000.

The number of births and deaths in the different Registration Sub districts of the City during 1885 and the previous year is subjoined :—

| Registration Sub-districts. | Births. | | Deaths. | |
|---|---|---|---|---|
| | 1884. | 1885. | 1884. | 1885. |
| Westgate ... ... | 2,569 | 2,514 | 1,429 | 1,619 |
| St. Andrew's ... ... | 616 | 589 | 411 | 388 |
| St. Nicholas' ... ... | 303 | 257 | 401 | 436 |
| All Saints' ... ... | 971 | 951 | 538 | 686 |
| Byker ... ... ... | 1,613 | 1,537 | 770 | 855 |
| City ... ... | 6,072 | 5,848 | 3,549 | 3,984 |

**Deaths in Public Institutions.**

The deaths in Public Institutions during the year under report are as follows :—

DEATHS IN PUBLIC INSTITUTIONS IN THE DIFFERENT REGISTRATION SUB-DISTRICTS DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| REGISTRATION SUB-DISTRICTS. | INSTITUTION. | DEATHS. | |
|---|---|---|---|
| Westgate ... ... | Workhouse ... ... ... | 191 | |
| | St. Joseph's House... ... | 17 | |
| | | | 208 |
| St. Andrew's ... ... | Moor Small-pox Hospital... | 1 | |
| | Magdalene do. ... | 1 | |
| | Hospital for Incurables ... | 1 | |
| | | | 3 |
| St. Nicholas' ... ... | Infirmary ... ... ... | 172 | |
| | Fever Hospital ... ... | 15 | |
| | Children's do. ... ... | 3 | |
| | | | 190 |
| All Saints' ... ... | *Nil.* | | |
| Byker ... ... ... | *Nil.* | | |
| | Total ... ... ... | | 401 |

Deaths from Miasmatic order of Zymotic Diseases.

The condition of the different Registration Sub-districts in regard of mortality from the Miasmatic order * of Zymotic diseases during last, as compared with the preceding, year is as follows :—

| Sub-Districts. | Number of Deaths from Miasmatic Diseases. | |
|---|---|---|
| | 1884. | 1885. |
| Westgate ... ... | 118 | 201 |
| St. Andrew's ... ... | 42 | 44 |
| St. Nicholas' ... ... | 30 | 58 |
| All Saints' ... ... | 45 | 109 |
| Byker ... ... ... | 108 | 177 |
| City ... ... | 343 | 589 |

The mortality from the "chief Zymotic diseases" † during successive seasons of the year is as follows :—

Number of Deaths in 1885.

| | REGISTRATION SUB-DISTRICTS AND CITY. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WESTGATE.‡ | | | | | ST. ANDREW'S. | | | | | ST. NICHOLAS'. | | | | | ALL SAINTS'. | | | | | BYKER. | | | | | CITY. | | | | |
| | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. | 1st Qr. | 2nd Qr. | 3rd Qr. | 4th Qr. | Total. |
| Small-pox ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 | ... | ... | ... | 3 | ... | ... | ... | ... | ... | 3 | ... | ... | ... | 3 |
| Measles... ... | 22 | 40 | 34 | 18 | 114 | 8 | 12 | 2 | 2 | 24 | 16 | 11 | 4 | ... | 31 | 2 | 47 | 15 | 4 | 68 | 8 | 94 | 6 | 14 | 122 | 56 | 204 | 61 | 38 | 359 |
| Scarlet Fever (Scarlatina) .. | 9 | 8 | 7 | 6 | 30 | 4 | 2 | ... | 1 | 7 | 1 | 1 | ... | ... | 2 | 2 | 3 | 7 | 5 | 17 | 11 | 10 | 4 | 2 | 27 | 27 | 24 | 18 | 14 | 83 |
| Diphtheria ... | 3 | 1 | 2 | 2 | 8 | ... | 2 | ... | ... | 2 | 1 | ... | 1 | ... | 2 | 2 | ... | 1 | 2 | 5 | 1 | 3 | 1 | 4 | 9 | 7 | 6 | 5 | 8 | 26 |
| Whooping Cough | 3 | 8 | 4 | 4 | 19 | 1 | ... | 1 | ... | 2 | 1 | ... | 2 | 2 | 5 | 2 | 4 | 1 | 1 | 8 | 6 | 7 | 1 | 1 | 15 | 13 | 19 | 9 | 8 | 49 |
| Typhus Fever... | ... | 1 | ... | ... | 1 | .. | 2 | ... | ... | 2 | ... | ... | ... | ... | ... | ... | 1 | 1 | 1 | 3 | 1 | ... | ... | ... | 1 | 1 | 4 | 1 | 1 | 7 |
| Enteric (or Typhoid) Fever... | 5 | 8 | 8 | 12 | 33 | 2 | 3 | ... | 2 | 7 | 1 | 2 | ... | 1 | 4 | 3 | ... | 1 | 2 | 6 | 1 | ... | 3 | 2 | 6 | 12 | 13 | 12 | 19 | 56 |
| Simple Contd. and Ill-defined Fever ... ... | 2 | ... | ... | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 | ... | ... | 2 | ... | ... | ... | ... | ... | 3 | 1 | ... | ... | 4 |
| Simple Cholera.. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Diarrhœa, Dysentery ... ... | 4 | 7 | 29 | 4 | 44 | 1 | 2 | 2 | 3 | 8 | ... | 1 | 3 | 1 | 5 | 3 | 4 | 17 | 1 | 25 | 2 | 5 | 21 | 3 | 31 | 10 | 19 | 72 | 12 | 113 |

Measles.

The most prevalent and most fatal Zymotic disease has been Measles, from which 359 deaths are returned. Of these, 204 occurred in the second quarter of the year.

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* See Appendix, Table III. In uniformity with the present Classification of causes of death adopted by the Registrar General, Diarrhœal diseases are now excluded from the Miasmatic order of the Zymotic class of diseases, and shewn separately.

† Corrected by distribution of those occuring in the Fever and Small-pox Hospitals to the District from which each patient came.

‡ Exclusive of Benwell and Fenham.

Bronchitis and Pneumonia.

## DEATHS FROM BRONCHITIS AND PNEUMONIA.

| A.D. 1885. | REGISTRATION SUB-DISTRICTS. | | | | | CITY. | Number in previous year (1884.) |
|---|---|---|---|---|---|---|---|
| | Westgate (Workhouse) | St. Andrew's | St. Nicholas' (Infirmary). | All Saints'. | Byker. | | |
| 1st Quarter ... | 64 | 15 | 10 | 32 | 25 | 146 | 125 |
| 2nd „ ... | 64 | 27 | 9 | 41 | 43 | 184 | 98 |
| 3rd „ ... | 51 | 10 | 13 | 27 | 19 | 120 | 82 |
| 4th „ ... | 58 | 13 | 8 | 27 | 22 | 128 | 142 |
| Year ... ... | 237 | 65 | 40 | 127 | 109 | 578 | 447 |
| Number in previous Year (1884) ... | 167 | 54 | 25 | 95 | 106 | 447 | ... |

## INFANT MORTALITY.

Infant Mortality.

The number of Infants dying before the completion of the first year of life is 1,007, as compared with 949, 919, and 914 respectively, in 1884, 1883, and 1882.

| REGISTRATION SUB-DISTRICTS. | No. 1. Deaths of Children under 1 year of age. | | No. 2. Rates per cent. of Deaths under 1 year to Births registered. | |
|---|---|---|---|---|
| | 1884. | 1885. | 1884. | 1885. |
| Westgate ... ... | 381 | 410 | 14·8 | 16·3 |
| St. Andrew's ... ... | 102 | 83 | 16·6 | 14·1 |
| St. Nicholas' ... ... | 56 | 57 | 18·5 | 22·2 |
| All Saints' ... ... | 146 | 188 | 15·0 | 19·8 |
| Byker ... ... ... | 264 | 269 | 16·4 | 17·5 |
| City ... ... | 949 | 1,007 | 15·6 | 17·4 |

The following are the most prominent diseases causing the infant mortality :—

| | DEATHS. | |
|---|---|---|
| | A.D. 1884. | A.D. 1885. |
| Measles ... ... ... ... | 4 | 78 |
| Whooping Cough ... ... ... | 42 | 23 |
| Diarrhœa, Dysentery ... ... | 113 | 68 |
| Premature Birth ... ... ... | 64 | 90 |
| Convulsions ... ... ... ... | 119 | 129 |
| Bronchitis ... ... ... ... | 82 | 82 |
| Pneumonia ... ... ... ... | 34 | 48 |
| Dentition ... ... ... ... | 22 | 29 |
| Debility, Atrophy, and Inanition.. | 223 | 217 |
| TOTAL ... ... ... | 703 | 764 |

## UNCERTIFIED DEATHS.

Uncertified Deaths.

That is to say, deaths registered without any proper medical certificate having been given or inquest held, have contributed 113 cases to the general mortality, as compared with 128 during the previous year. See Appendix A, Table IX.

## MARRIAGES.

Marriages.

During the year ending March 31st, 1885, the number of marriages registered in Newcastle-upon-Tyne * was 1,730, as compared with 1,902 in the previous twelve months, and 1,872 in the year before that.

## CASES OF INFECTIOUS DISEASE KNOWN TO THE HEALTH DEPARTMENT.

Notification of Infectious Diseases.

During the year under report a total of 1,727 cases of Infectious Disease† have been made known to the Medical Officer of Health by medical practitioners, under the Newcastle-upon-Tyne Improvement Act, 1882, and otherwise, including the following :—

| | CASES KNOWN TO THE HEALTH DEPARTMENT. | |
|---|---|---|
| | A.D. 1884. | A.D. 1885. |
| Small-pox ... ... ... ... | 174 | 70 |
| Typhus ... ... ... ... | 17 | 9 |
| Enteric Fever ... ... ... | 260 | 253 |
| Simple Continued Fever ... ... | 41 | 64 |
| Scarlet Fever ... ... ... | 2,167 | 1,227 |
| Diphtheria ... ... ... ... | 76 | 93 |
| Puerperal Fever ... ... ... | 16 | 11 |
| TOTAL ... ... ... | 2,751 | 1,727 |

---

* Superintendent Registrar's district, which includes the Municipal area and the Townships of Benwell and Fenham.

† A Street List of the cases is given in Appendix A, Table X.

The following Tables show the monthly returns of the diseases above named in the respective Parishes, &c., of the City:—

Small-pox in different Parishes, &c., during successive months.

## SMALL-POX IN NEWCASTLE-UPON-TYNE.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| A.D. 1885. | Parishes or Townships. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Elswick. | Westgate. | St. Andrew's | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... | 1 | ... | ... | ... | 1 | 6 | ... | ... | 8 |
| February ... | ... | ... | 1 | ... | ... | 5 | ... | ... | 6 |
| March ... | 9 | 1 | 1 | ... | 1 | 6 | ... | ... | 18 |
| April... ... | 13 | 1 | 3 | ... | 1 | 3 | ... | 1 | 22 |
| May ... ... | 3 | ... | ... | ... | ... | 5 | ... | ... | 8 |
| June ... ... | 5 | ... | ... | .. | ... | ... | ... | ... | 5 |
| July ... ... | 2 | ... | ... | ... | ... | ... | ... | 1 | 3 |
| August ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| September ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| October ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| November ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| December ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total ... | 33 | 2 | 5 | ... | 3 | 25 | ... | 2 | 70 |

Typhus Fever in different Parishes, &c., during successive months.

## TYPHUS FEVER IN NEWCASTLE-UPON-TYNE.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| A.D. 1885. | Parishes or Townships. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| February ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| March ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| April ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| May ... ... | ... | 2 | 1 | ... | ... | ... | ... | ... | 3 |
| June ... ... | 1 | ... | ... | ... | ... | 1 | ... | ... | 2 |
| July ... ... | ... | ... | ... | .. | ... | ... | ... | 1 | 1 |
| August ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| September ... ... | ... | ... | ... | 1 | ... | ... | ... | ... | 1 |
| October ... ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 |
| November ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| December ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total ... ... | 2 | 2 | 1 | 1 | ... | 1 | ... | 2 | 9 |

## ENTERIC FEVER IN NEWCASTLE-UPON-TYNE.

Enteric Fever in different Parishes, &c., during successive months.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| A.D. 1885. | Parishes or Townships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | 5 | 3 | 3 | ... | ... | ... | 1 | 2 | 14 |
| February ... ... | 5 | 3 | 3 | 2 | ... | 3 | 2 | ... | 18 |
| March ... ... | 6 | 3 | 6 | 1 | ... | 4 | ... | 2 | 22 |
| April ... ... | 5 | 4 | 1 | ... | ... | ... | ... | 5 | 15 |
| May ... ... | 4 | 1 | 2 | ... | 1 | 3 | 1 | 1 | 13 |
| June ... ... | 4 | 3 | 3 | ... | 2 | ... | ... | 5 | 17 |
| July ... ... | 10 | 3 | ... | 2 | ... | 2 | ... | ... | 17 |
| August ... .. | 1 | 3 | ... | 1 | ... | 5 | 1 | ... | 11 |
| September ... ... | 7 | 3 | 3 | 1 | 1 | 4 | 1 | 4 | 24 |
| October ... ... | 7 | 13 | 3 | 1 | ... | 8 | ... | 5 | 37 |
| November ... ... | 13 | 6 | 5 | 2 | 1 | 9 | ... | 7 | 43 |
| December ... .. | 3 | 9 | 3 | 3 | 1 | 3 | ... | ... | 22 |
| Total ... ... | 70 | 54 | 32 | 13 | 6 | 41 | 6 | 31 | 253 |

## CONTINUED FEVER IN NEWCASTLE-UPON-TYNE.

Continued Fever in different Parishes, &c., during successive months.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| A.D. 1885. | Parishes or Townships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | 4 | ... | ... | ... | ... | ... | ... | ... | 4 |
| February ... ... | 6 | 3 | 1 | ... | ... | ... | ... | 1 | 11 |
| March ... ... | 1 | ... | 4 | 1 | ... | 1 | ... | 3 | 10 |
| April ... ... | 1 | 2 | 2 | ... | ... | 1 | ... | ... | 6 |
| May ... ... | 2 | ... | ... | ... | ... | ... | ... | 2 | 4 |
| June ... ... | 1 | 2 | ... | ... | ... | ... | 1 | 3 | 7 |
| July ... ... | ... | 1 | ... | ... | ... | ... | ... | 1 | 2 |
| August ... .. | ... | 1 | ... | ... | ... | ... | ... | ... | 1 |
| September ... ... | 1 | 1 | ... | ... | ... | 1 | ... | 1 | 4 |
| October ... ... | 1 | ... | ... | ... | 1 | 2 | ... | ... | 4 |
| November ... ... | 2 | 2 | ... | ... | ... | 1 | ... | 3 | 8 |
| December ... ... | 2 | ... | ... | ... | ... | ... | ... | 1 | 3 |
| Total ... ... | 21 | 12 | 7 | 1 | 1 | 6 | 1 | 15 | 64 |

Scarlet Fever in different Parishes, &c., during successive months.

## SCARLET FEVER IN NEWCASTLE-UPON-TYNE.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| | Parishes or Townships. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A.D. 1885. | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | 51 | 39 | 16 | 5 | 1 | 14 | 9 | 30 | 165 |
| February ... ... | 40 | 23 | 9 | 3 | 2 | 15 | 7 | 31 | 130 |
| March ... ... | 27 | 13 | 30 | 1 | ... | 14 | 5 | 32 | 122 |
| April ... ... | 30 | 6 | 19 | 3 | 2 | 13 | 1 | 32 | 106 |
| May ... ... | 24 | 11 | 12 | 4 | 1 | 7 | 7 | 10 | 76 |
| June ... ... | 20 | 25 | 8 | 1 | 6 | 7 | 2 | 14 | 83 |
| July ... ... | 18 | 18 | 4 | 2 | 7 | 2 | 4 | 15 | 70 |
| August ... ... | 16 | 15 | 3 | 6 | 3 | 6 | ... | 3 | 52 |
| September ... ... | 17 | 28 | 14 | 4 | 4 | 17 | 5 | 8 | 97 |
| October ... ... | 23 | 13 | 14 | 2 | ... | 27 | 4 | 20 | 103 |
| November ... ... | 29 | 20 | 8 | 14 | 1 | 25 | 4 | 27 | 128 |
| December ... ... | 25 | 18 | 13 | 4 | 3 | 16 | 3 | 13 | 95 |
| Total ... ... | 320 | 229 | 150 | 49 | 30 | 163 | 51 | 235 | 1,227 |

Diphtheria in different Parishes, &c., during successive months.

## DIPHTHERIA IN NEWCASTLE-UPON-TYNE.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| | Parishes or Townships. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A.D. 1885. | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | 4 | 2 | ... | ... | ... | ... | 1 | 2 | 9 |
| February ... ... | ... | ... | ... | 1 | ... | 4 | 1 | 1 | 7 |
| March ... ... | 1 | 1 | ... | ... | ... | ... | 1 | 3 | 6 |
| April ... ... | 2 | ... | 2 | ... | ... | ... | ... | 1 | 5 |
| May ... ... | ... | 1 | 1 | ... | ... | ... | ... | 7 | 9 |
| June ... ... | ... | 1 | ... | ... | ... | ... | 1 | 3 | 5 |
| July ... ... | 1 | 4 | ... | ... | ... | ... | 7 | ... | 12 |
| August ... ... | ... | 1 | 1 | ... | ... | ... | ... | ... | 2 |
| September ... ... | ... | 2 | ... | ... | ... | 2 | 1 | 1 | 6 |
| October ... ... | ... | 2 | ... | ... | ... | 3 | 2 | 2 | 9 |
| November ... ... | ... | 1 | ... | ... | ... | 1 | 10 | 6 | 18 |
| December ... ... | 2 | 1 | ... | ... | ... | 1 | ... | 1 | 5 |
| Total ... ... | 10 | 16 | 4 | 1 | ... | 11 | 24 | 27 | 93 |

Puerperal Fever in different Parishes, &c., during successive months.

## PUERPERAL FEVER IN NEWCASTLE-UPON-TYNE.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

| | Parishes or Townships. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A.D. 1885. | Elswick. | Westgate. | St. Andrew's. | St. John's. | St. Nicholas'. | All Saints'. | Jesmond. | Byker, including Heaton. | Total. |
| January ... ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 |
| February ... .. | ... | ... | ... | 1 | ... | ... | ... | ... | 1 |
| March ... ... | ... | ... | ... | ... | ... | 1 | ... | 3 | 4 |
| April ... ... | ... | ... | ... | 1 | ... | 2 | ... | ... | 3 |
| May ... ... | ... | ... | .. | ... | ... | ... | ... | ... | ... |
| June ... ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 |
| July ... ... | ... | ... | ... | ... | ... | .. | ... | ... | ... |
| August ... ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| September ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| October ... ... | ... | .. | ... | ... | ... | ... | ... | ... | ... |
| November ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| December ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total ... ... | 1 | ... | ... | 2 | ... | 4 | ... | 4 | 11 |

Relative fatality of Diseases notified.

The general mortality of each of the diseases above named, calculated on deaths returned and cases notified during the same period is :—

| | | |
|---|---|---|
| Small-pox ... ... ... | 4·3 | per cent. |
| Typhus Fever ... ... ... | 77·8 | ,, ,, |
| Enteric Fever ... ... ... | 22·1 | ,, ,, |
| Continued Fever ... ... | 6·2 | ,, ,, |
| Scarlet Fever ... ... ... | 6·8 | ,, ,, |
| Diphtheria ... ... ... | 2·8 | ,, ,, |
| Puerperal Fever ... ... | 36·4 | ,, ,, |

## INFECTIOUS DISEASE INQUIRY.

Small-pox.

### SMALL-POX.

The undermentioned details refer to Small-pox during the year 1885:—

| | |
|---|---|
| Fresh cases in 31 households—single cases ... ... | 31 |
| ,, ,, 8 ,, 2 cases each ... ... | 16 |
| ,, ,, 1 ,, 3 cases ... ... ... | 3 |
| ,, ,, 1 ,, 4 ,, ... ... | 4 |
| ,, ,, 1 ,, 5 ,, ... ... | 5 |
| ,, ,, 1 ,, 6 ,, ... ... | 6 |
| 43 | 65 |
| Fresh cases in 2 Public Institutions, for particulars see Table, page 20 ... ... ... ... ... ... ... | 2 |
| Fresh case from Irishope Burn (Weardale) ... ... | 1 |
| Cases in 1885 on premises where cases in 1884 had already been inquired into ... ... ... ... ... | 2 |
| Total | 70 |

C

Small-pox in relation to Tenement Houses, &c.

Of the infected houses :—

7, or about 16 per cent., consisted of 1 room each.
16, „ 37 „ „ 2 rooms „
10, „ 23 „ „ 3 „ „
10, „ 23 „ „ 4 „ (or more).

Isolation of Sick-rooms.

Of the sick-rooms in the 43 different houses infected no less than 18 are returned as being not at all isolated from the rest of the premises, the family either living in the sick-room or having direct access to it. In 17 of the houses no means were being taken to prevent the spread of infection. In 26 cases removal to Hospital was agreed to and effected.

Residents on Infected Premises occupied elsewhere.

56 occupants of the infected houses were employed at shops, &c., or in occupations elsewhere, as shewn on Table at page 25.

The following businesses were being carried on on infected premises, whereby infection was liable to be communicated to customers :—

Shops, and Occupations on Infected Premises.

| Character of Infected Premises, &c. | No. of Households. | No. of Cases. | Remarks made at date of inquiry. |
|---|---|---|---|
| Butcher's Shop ... ... ... | 1 | 1 | See case No. 14. below, |
| Beer-house ... ... ... | 1 | 1 | No precautions were being taken. Patient afterwards removed to Hospital. |

## CASES ILLUSTRATING HOW INFECTION IS BELIEVED TO HAVE BEEN SPREAD.

Examples of Spread of Infection.

On the last day of 1884, a household in Blagdon Street (case No. 127*) was reported infected with Small-pox (2 cases). During the early part of 1885, within a very small radius, principally in the same block of tenemented property, no less than other 19 cases (Nos. 2, 3, 6, 7, 8, 9, 11, 15, 20, 23, 27, 36 and 38,) were reported to this department. The infection is supposed to have been spread by direct communication between the different households. Again case No. 13 (in Union Street, Shieldfield) reported on March 6th, evidently caught infection from his brother in Blagdon Street (No. 9 above referred to.) Case No. 16 Union Street reported on March 14th, the suspected source of infection is case No. 11 referred to above.

On March 5th, a household (case No. 12) at Back Crispin Street, Bentinck, was reported infected, from which the disease is believed to have spread by direct contagion to cases Nos. 19, 21, 22, 25, 26, 28, 29, 31, 37, and 39. Total persons infected 19, including 5 in one family of six in all.

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* This, and subsequent corresponding numbers, refer to the entries in the Register.

Case No. 14 reported at Stanhope Street on March 9th, infection believed to have been caught by visiting case No. 10 (in Day Street.)*

April 28th (cases Nos. 33 and 34), at Vine Lane and Cook Street are believed to have contracted Small-pox by visiting a neighbouring town where the disease was prevalent.

June 15th, Cook Street (case No. 42) patient had been working for a man who was suffering from the same disease in a town in the County of Durham.

Duration of Outbreak.

The first case in the outbreak was notified on January 11th, 1884. The last case of Small-pox in the outbreak was notified on July 11th, 1885. The total number of cases notified in the outbreak is 244.

## TYPHUS.

Typhus.

The undermentioned details refer to Typhus Fever in the City during 1885.

| | |
|---|---|
| Fresh cases in 8 households ... ... ... | 8 |
| ,, case ,, 1 Public Institution ... | 1 |
| Total | 9 |

Typhus in relation to Tenement Houses, &c.

Of the infected houses :—

| | | | | | |
|---|---|---|---|---|---|
| 7, | or about 88 | per cent., | consisted | of 2 | rooms each |
| 1, | ,, 12 | ,, | ,, | 4 | ,, |
| 8 | | | | | |

Isolation of Sick-rooms.

Of the sick-rooms in the 8 different houses infected 6 are returned as being not at all isolated from the rest of the premises, the family either having direct access to, or living in, the sick-room. In 7 of the houses no means to prevent infection were being taken. In 6 cases removal to Hospital was agreed to.

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* The following case was also traced to that in Day Street. A man (E.C.D.) suffering from Small-pox was brought to the Hospital in a cab shortly after midnight on the 4th of March. He had been driven in the cab from Irishope Burn, Weardale, County of Durham, to which place he had gone on a visit from Newcastle, a few days before. Whilst there he had sickened with Small-pox, and was sent away by the persons he had gone to visit. On inquiry into the origin of the infection it was found that E.C.D. had sat by the bedside of the patient in Day Street on a date which corresponded with that on which he would be likely to receive infection.

Residents on Infected Premises occupied elsewhere.

10 occupants of the infected houses were employed at shops, &c., or in occupation elsewhere, as shewn on page 25.

Trade on Infected Premises.

In one case the business carried on was that of a Dairyman and at the date of inquiry there was no isolation, and no precaution was being taken to prevent the spread of infection.

Duration of Outbreak.

Date of first case notified January 14th, 1885.
„ last „ „ October 23rd, „

## Enteric Fever.

Enteric Fever.

The undermentioned details refer to Enteric Fever during the year 1885.

Fresh cases—

| | |
|---|---|
| In 192 households—single cases ... ... ... | 192 |
| „ 20 „ 2 cases each ... ... ... | 40 |
| „ 1 „ 5 „ ... ... ... | 5 |
| | 237 |
| Fresh cases in 2 Public Institutions ... ... | 13 |

For particulars see Table, page 20.

| | |
|---|---|
| Cases in 1885, on premises where cases in 1884 had already been inquired into ... ... ... | 3 |
| Total... ... ... ... ... | 253 |

In relation to Tenement Houses, etc.

Of the infected houses—

| | | | | |
|---|---|---|---|---|
| 29, | or about 14 | per cent., | consisted of | 1 room each. |
| 72, | „ 34 | „ | „ | 2 rooms „ |
| 39, | „ 18 | „ | „ | 3 „ „ |
| 73, | „ 34 | „ | „ | 4 „ (or more). |
| 213 | | | | |

Isolation of Sick-rooms.

Of the sick-rooms in the 213 different houses infected, no less than 85 are returned as being not at all isolated from the rest of the premises, the family either having direct access to, or living in, the sick-room. In 83 of the houses no means to prevent infection were being taken. In 36 cases removal to Hospital was agreed to and effected.

Residents on infected premises occupied elsewhere.

257 occupants of the infected houses were employed at shops, &c., or in occupations elsewhere, as shewn on page 25.

Business on infected premises.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers :—

| Character of Infected Premises, &c. | No. of | | Remarks made at date of inquiry. |
|---|---|---|---|
| | Households. | Cases. | |
| Public Houses and Beer Houses ... ... | 5 | 6 | In 1 case no precautions to prevent spread of infection were being taken, and the family had access to the sick-room. |
| Washerwomen ... | 2 | 3 | In neither of these cases was there isolation ; and in 1 case no precautions were being taken. In 1 of the cases the family had access to, and in the other case lived in, the sick-room. In 1 case work was suspended. |
| Tailors and Drapers ... | 3 | 3 | In 1 case there was no isolation or precaution taken, and the family lived in the sick-room, which, however, had no communication with the tailors' shop on the premises. In 1 case the family had access to sick-room. |
| Barber ... ... ... | 1 | 1 | In this case there was no isolation or precaution taken, and the family lived in the sick-room. Supposes he caught infection whilst shaving a patient ill of the same complaint. |
| Shop (ginger-beer made and sold) ... ... | 1 | 1 | No precautions were being taken, and the family had access to sick-room. |
| Boot Finisher ... ... | 1 | 1 | Do., do. |
| Dressmaker ... ... | 1 | 1 | In this case there was no isolation, and the family had access to sick-room. |
| Temperance Hotel ... | 1 | 1 | .................. |
| Lodging-house ... | 1 | 1 | In this case there was no isolation or precaution taken, and the family had access to sick-room. |

In relation to milk supply.

The households affected were supplied with milk by a large number of dealers, and there is no reason to suppose that any outbreak was attributable to milk. 18 dairies only supplied milk to more than one infected household, viz.:—

5 dairies supplied 3 households affected (each).
13 ,, 2 ,, ,,

All the water supplied to the infected households is reported as being obtained direct from the mains of the Water Company, except in 2 cases, where the water on the premises was "off," and 1 case in which the supply for drinking came through the cistern of the water-closet.

## CONTINUED FEVER.

Continued Fever.

The undermentioned details refer to Continued Fever during the year 1885.

Fresh cases—

| | | | |
|---|---|---|---|
| In 40 | households— | single cases ... ... ... | 40 |
| „ 5 | „ | 2 cases each ... ... ... | 10 |
| „ 3 | „ | 3 „ ... ... ... | 9 |
| „ 1 | „ | 4 „ ... ... ... | 4 |
| 49 | | | 63 |
| Case in 1885, on premises where inquiry was made in 1884 ... ... ... ... ... ... | | | 1 |
| | | Total ... ... ... ... | 64 |

In relation to Tenement Houses, etc.

Of the infected houses—

| | | | |
|---|---|---|---|
| 5, | or about 10 per cent., | consisted of | 1 room each. |
| 13, | „ 27 „ | „ | 2 rooms „ |
| 13, | „ 27 „ | „ | 3 „ „ |
| 18, | „ 37 „ | „ | 4 „ (or more). |
| 49 | | | |

Isolation of Sick-rooms.

Of the sick-rooms in the 49 different houses infected, 21 are returned as being not at all isolated from the rest of the premises, the family either having access to, or living in, the sick-room. In 27 of the houses no means to prevent the spread of infection were being taken. In 5 cases removal to Hospital was agreed to and effected.

Residents on infected premises occupied elsewhere.

52 occupants of the infected houses were employed at shops, &c., or in occupations elsewhere, as shewn at page 25.

Business on infected premises.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers :—

| Character of Infected Premises, &c. | No. of Households. | No. of Cases. | Remarks made at date of inquiry. |
|---|---|---|---|
| Pork Butcher's Shop ... | 1 | 1 | .................... |
| Beer House ... ... | 1 | 1 | In this case no precaution was being taken. |
| Draper .. ... ... | 1 | 1 | Do., do., and the family had access to sick-room. |
| Machinist ... ... | 1 | 1 | The case was not isolated, nor was precaution being taken. The family were living in the sick-room. |

## SCARLET FEVER.

Scarlet Fever.

The undermentioned details refer to Scarlet Fever during the year 1885.

Fresh cases—

| | | |
|---|---|---|
| In 489 households— | single cases ... ... | 489 |
| ,, 157 ,, | 2 cases each ... ... | 314 |
| ,, 61 ,, | 3 ,, ... ... | 183 |
| ,, 24 ,, | 4 ,, ... ... | 96 |
| ,, 8 ,, | 5 ,, ... ... | 40 |
| ,, 7 ,, | 6 ,, ... ... | 42 |
| ,, 1 ,, | 8 cases ... ... ... | 8 |
| 747 | | 1,172 |
| | Less 1 case (notified in error) | 1 |
| | | 1,171 |

| | |
|---|---|
| Fresh cases in 4 Public Institutions. For particulars see Table, page 20 ... ... | 27 |
| Cases in 1885 on premises where cases in 1884 had already been inquired into ... | 29 |
| Total ... ... ... ... | 1,227 |

In relation to Tenement Houses, etc.

Of the infected houses—

| | | |
|---|---|---|
| 93, | or about 12 per cent., consisted of | 1 room each. |
| 243, | ,, 33 ,, ,, | 2 rooms ,, |
| 149, | ,, 20 ,, ,, | 3 ,, ,, |
| 262, | ,, 35 ,, ,, | 4 ,, (or more) each. |
| 747 | | |

Isolation of Sick-rooms.

Of the sick-rooms in the 747 different houses infected no less than 300 are returned as being not at all isolated from the rest of the premises, the family either living in the sick-room or having direct access to it. In 383 of the houses no means to prevent infection were being taken. In 38 cases only was removal to Hospital agreed to and effected.

Residents on infected premises occupied elsewhere.

762 occupants of the houses in question were employed at shops, &c., or in occupations elsewhere, as shewn at page 25.

Scarlet Fever.—*Continued.* Businesses on infected premises.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers—

| Character of Infected Premises, &c. | No. of House-holds. | No. of Cases. | Remarks made at date of inquiry. |
|---|---|---|---|
| Shops for sale of groceries, provisions, meat, confectionery, &c. ... | 17 | 25 | In 4 of these cases the sick-room was not isolated from the rest of the house. In 6 cases no precautions to prevent spread of infection were being taken. In one case the family lived in the sick-room ; and in 4 cases the families had access to it. |
| Public-houses and beer-houses ... ... | 9 | 10 | In two cases no precautions were being taken to prevent the spread of infection. In 2 cases the family had access to the sick-room. |
| Dairies ... ... ... | 5 | 7 | In 1 of the cases the sick-room was not isolated from the rest of the premises. In 1 case no precaution was being taken to prevent the spread of infection. In 1 case the family lived in the sick-room, and the patient was found in back lane attending to the cow. He was forbidden to leave the house, and the cowkeeper undertook to sell the cow at once. |
| Tailors and drapers ... | 5 | 9 | In 2 cases no precaution was being taken to prevent spread of infection. In 1 case the sick-room was not isolated from rest of premises. In 2 cases the family had access to the sick-room. |
| Dressmakers ... ... | 3 | 3 | In 1 case the sick-room was not isolated from rest of premises. In 2 cases no precautions were being taken to prevent the spread of infection. |
| Shoemaking ... ... | 2 | 4 | No isolation or precautions were being taken in either case. In 1 case the family lived in the sick-room, and in the other infection was likely to be spread by neighbours visiting the patients. |
| Washerwomen... ... | 2 | 3 | In 1 case no precautions were being taken to prevent spread of infection ; in the other case the work was suspended. In both cases the family had access to the sick-room. |
| Paperhangers ... ... | 3 | 6 | In 1 case the sick-room was not isolated from the rest of the premises. In two cases no precautions were being taken. In 1 case the family lived in the sick-room. |
| Barber ... ... ... | 1 | 2 | In this case the family had access to the sick-room. |
| Picture Framers ... | 2 | 4 | In one case the sick-room was not isolated (the family living in it), and no precautions were being taken to prevent spread of infection. |

Scarlet Fever in relation to School Attendance.

*Scarlet Fever in relation to School Attendance.*—Of 747 households infected with Scarlet Fever, 530 contained scholars of one or other of 130 different schools in the City. In four of the largest elementary schools scholars came from upwards of 20 of such households during the year, the largest number coming to any one school being 33.

In no school was there infection in the households of its scholars during *every* month of the year. In one school, such infection occurred during eleven different months, and in three others during ten months.

On four different occasions from 5 to 7 families of the scholars of individual schools were infected during the same months, including one school twice so affected during the year.

The foregoing returns are considerably less prominent than were those of the preceding year.

Scarlet Fever in the Infirmary.

*Scarlet Fever and the Newcastle Infirmary.*—In September, Scarlet Fever broke out in the children's ward of the Newcastle Infirmary. Coincident with the cases were others of suspicious sore throat. The cases (in all 4 of Scarlet Fever and 6 of sore throat in a period of about four weeks) were removed to the Fever Hospital. A case of Scarlet Fever had been admitted to the Fever Hospital from the Infirmary in July. Another (a hospital nurse) was removed in November. The introduction of infection into the Infirmary on these occasions was not traced.

During the month of September the following instance of infection, probably contracted at the Infirmary, occurred among the visitors to the out-patient department. On September 5th, a child suffering from Scarlet Fever was brought to the Fever Hospital, after having been taken, in the first instance, to the Infirmary, when it was examined among the out-patients. One of these out-patients, who remained an hour at the Infirmary, fell ill of Scarlet Fever on the 11th of September, the sixth day after exposure to infection. This patient had not to his knowledge been exposed to any other source of infection. It was only on comparing dates that the highly probable origin of his illness was made out.

Infection imported.

*Scarlet Fever imported from the Country.*—Two instances of importation of Scarlet Fever have been noted :—

In October, A. C., a domestic servant, came to her home in Byker, from a situation in the country, and fell ill of Scarlet Fever a day or two afterwards.

In the other case (also in October) the patient (A. R.) was brought home to Union Street, Newcastle, from Shotley Bridge, by her mother, who on the journey used three different public conveyances, viz., a hired conveyance from Shotley Bridge to the Railway Station at Shotley Bridge, a third-class railway carriage to Newcastle, and a hansom cab from the Newcastle Railway Station to the house*

## DIPHTHERIA.

Diphtheria

The undermentioned details refer to Diphtheria during the year 1885.

Fresh Cases—

| | | | |
|---|---|---|---|
| In | 59 | households—single cases ... ... ... | 59 |
| „ | 6 | „ —2 cases each ... ... ... | 12 |
| „ | 2 | „ —3 „ ... ... ... | 6 |
| „ | 2 | „ —4 „ ... ... ... | 8 |
| „ | 1 | „ —7 cases ... ... ... | 7 |
| | 70 | | 92 |
| | | Case in Public Institution—for particulars see Table, page 20 ... ... ... ... | 1 |
| | | | 93 |

In relation to Tenement Houses, etc.

Of the infected houses—

| | | | | |
|---|---|---|---|---|
| 2 | or about | 3 per cent. | consisted of | 1 room each. |
| 16 | „ | 23 „ | „ | 2 rooms „ |
| 21 | „ | 30 „ | „ | 3 „ |
| 31 | „ | 44 „ | „ | 4 „ (or more.) |
| 70 | | | | |

Isolation of sick-rooms.

Of the sick-rooms in the 70 different houses infected, no less than 29 are returned as being not at all isolated from the rest of the premises, the family either having access to, or living in, the sick-room. In 26 of the houses no means to prevent infection were being taken. In one case removal to Hospital was agreed to and effected.

Residents on infected premises occupied elsewhere.

73 occupants of the houses in question were employed at shops, &c., or in occupations elsewhere, as shown on Table at page 25.

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* The mother was afterwards cautioned by the Benfieldside Rural Sanitary Authority, from whose district the child was removed.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers:—

Businesses on infected premises.

| Character of Infected Premises, &c. | No. of cases of Infectious Disease. | REMARKS. |
|---|---|---|
| Post Office (Stationer's Shop) ... | 1 | |
| Beer-house ... ... ... ... | 1 | |
| Milk Dealer... ... ... ... | 1 | |

Diphtheria in relation to Milk supply.

*Milk Supply.*—The households affected were supplied by a large number of dealers, and in 5 cases only was milk supplied to more than one infected household by the same dealer. In one case the premises infected were occupied by a milk dealer. In this case precautions were taken and the premises were supervised. No spread of the disease occurred through the supply of milk to other households. There is no reason to attribute the spread of infection to milk in any case.

## PUERPERAL FEVER.

Puerperal Fever.

The undermentioned details refer to Puerperal Fever during the year 1885.

Inquiries were made in 11 households, containing a total of 11* cases.

Of the infected houses—

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | or about | 36 | per cent. | consisted of | 1 | room each. |
| 7 | „ | 64 | „ | „ | 2 | rooms „ |
| 11 | | | | | | |

Puerperal Fever and Midwifery Practice.

*Puerperal Fever and Midwifery Practice.*—Of the above 11 cases, 3 occurred in April in the practice of the same medical practitioner. Seven were attended in confinement by six different midwives. One midwife attended two of the cases in labour in March ; her partner also attended another case in October. The remaining case was attended by the mother of the patient. In the last named, and also in each of the confinements attended by midwives, the cases were notified by medical practitioners afterwards called in. The medical practitioner above referred to gave up attending midwifery practice, as did the various midwives on being informed of their liability owing to the serious nature of the cases. The period of entire cessation from practice recommended was two months, which it is believed was allowed to elapse in every instance. The person and apparel of the respective midwifery practitioners were also disinfected.

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* One death certified as due to "Uterine Phlebitis after Parturition" is entered as a case of Puerperal Fever in the Mortality Tables, but is not included in the above.

Infectious Diseases in Public Institutions.

### INFECTIOUS CASES IN PUBLIC INSTITUTIONS IN NEWCASTLE.

| Institution. | Small-pox. | Typhus Fever. | Enteric Fever. | Scarlet Fever. | Diphtheria. | TOTAL. |
|---|---|---|---|---|---|---|
| Barracks ... ... | ... | ... | ... | 1 | ... | 1 |
| Infirmary ... ... | ... | ... | 5 | 6 | ... | 11 |
| Industrial Schools ... | 1 | ... | ... | ... | ... | 1 |
| Boys' Orphanage ... | ... | ... | ... | 1 | ... | 1 |
| Workhouse ... ... | ... | 1 | 8 | 19 | 1 | 29 |
| H.M. Prison ... ... | 1 | ... | ... | ... | ... | 1 |
| Total ... | 2 | 1 | 13 | 27 | 1 | 44 |

## MEASLES.

Measles in Schools.

Two outbreaks of Measles have been met with in connexion with private day schools. The first of these came under notice in October. In all 42 cases occurred in a total of 202 scholars of this school, of whom 4 were boarders.

The second outbreak, which was reported in November, was limited to a total of 9 cases in a day school of 56 pupils.

Advice as to.

In each of these outbreaks the advice of the Health Department was sought by the principal of the school as to the best measures to be taken; full information as to details, the sanitary regulations of the premises was freely afforded, and the *recommendations* given were as follows:—

The principals were advised to have the class-rooms disinfected* to make strict and frequent inquiry among the pupils as to the occurrence at their homes of cases of Measles, or any supposed catarrhal ailment for which Measles might be mistaken, and in all such to exclude the pupils from school until the absence of fear of infection was ascertained. After every case of Measles the provision of a Medical Certificate as to freedom from infection, and fitness to return to school was enjoined.

Action taken.

These recommendations were willingly attended to. As an additional precaution the principal of the larger establishment voluntarily closed his school for a time. This step had not been included in the general recommendations given above, as it was believed that if all infected and doubtful cases were kept away and the rooms purified, the other pupils would not be endangered.

The following is an extract from the Report made to the Sanitary Committee on the foregoing:—

Cases of Measles should be notified to the Corporation.

> "The outbreaks in question show the importance of the notification of Infectious Disease of all the more prevalent kinds. Had *Measles* been so notified the causes of the absence of many of

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* This was done by the Health Department.

Infectious disease should be reported to SchoolPrincipals

for the Protection of Scholars.

the pupils from school would have been earlier drawn attention to. The action of the Sanitary Authority, ensuing on the report of the cases, would have had salutary effect in limiting the introduction of infection into the schools. But this is not all. In flourishing private adventure schools many pupils are attracted from a distance, and those may carry the seeds of disease between the school and homes beyond the limit of the area of notification. To protect the pupils it is therefore desirable that principals of such schools should be informed of cases of infectious sickness in the households of their pupils, and that no pupils or teachers should be allowed to come to school from infected houses.

"The guarantee of freedom from infection might be either a Medical Certificate or one of final disinfection by a Sanitary Authority.

Liability to concealment of cases.

Need of power to require lists of pupils.

"Principals of schools may not always be willing as they were in the above named instances to afford information of sickness in their schools. Indeed, cases of concealment are likely to arise. Under such circumstances the power to require a list of the pupils and absentees for comparison with the returns of sickness would be useful, even though not put into operation. Similar power was obtained by the Corporation in regard of milk-supply customers in the Newcastle Improvement Act of 1882, which has been found useful.

Previous outbreaks in Schools.

"An account of two previous outbreaks of disease in schools is given in the Annual Report for 1880. In the Report for last year (pp. 23 & 4) reference is made to Scarlet Fever in relation to school attendance, and on page 27 is a return of a schoolmaster's and teacher's resident on infected premises and attending school.

Previous recommendations.

"Owing to prevalence of infectious disease in connection with schools in 1879, and again in 1883, a circular of recommendations (copy submitted) was issued on the authority of the Sanitary Committee to the principals and managers of schools.

Sanitary State of Schools of Newcastle.

"The approval of school premises and the sanitary state of schools (ventilation, crowding, lighting, whitewashing, the provision of a sufficiency of conveniences, exits, &c.), are matters over which in private adventure schools the Sanitary Authority has no control. Parents should have the satisfaction of knowing the sanitary condition of the schools their children are attending is supervised.

"The condition of the schools in Newcastle in these and other respects was described in the Special Report on the Increased Death-rate of the City during 1883."

Isolation and other preventive measures in infected households.

*Isolation of the Infected Sick and other preventive measures, and the extent to which they are adopted on Infected Premises.*—The Annual Report for 1884 gave certain particulars having an important bearing on the question of the prevention of infectious disease. These particulars were intended to show the extent to which the infected dwellings admitted, or did not admit, of the isolation of the sick. They also shewed the number of instances in different infectious diseases where no means whatever were being adopted by the occupier to prevent the spread of infection. The inquiry in this direction has been somewhat extended during the year under report. The results are as follows :—

SUMMARY.—CHARACTER OF INFECTED HOUSES.

| DISEASE. | DWELLINGS INVADED BY DISEASE. | | | | |
|---|---|---|---|---|---|
| | HOUSEHOLDS. | | | Houses of more than 3 rooms. | Total Households. |
| | 1 room each. | 2 rooms each. | 3 rooms each. | | |
| Small-pox ... ... | 7 | 16 | 10 | 10 | 43 |
| Typhus ... ... ... | ... | 7 | ... | 1 | 8 |
| Enteric Fever ... ... | 29 | 72 | 39 | 73 | 213 |
| Continued Fever... ... | 5 | 13 | 13 | 18 | 49 |
| Scarlet Fever ... ... | 93 | 243 | 149 | 262 | 747 |
| Diphtheria ... ... | 2 | 16 | 21 | 31 | 70 |
| Totals ... ... | 136 | 367 | 232 | 395 | 1130 |
| Rate per cent. to Total .. | 12% | 32% | 21% | 35% | ... |

Largest part of cases are in small dwellings.

The above Table gives the actual numbers of the different classes of dwellings invaded, which is useful for comparison. It shews, for example, that about three-fourths of the dwellings infected with Small-pox, and two-thirds of those infected with Enteric and Scarlet Fevers, are of the smaller class ; and that of the dwellings invaded by each of the three diseases named, those of the pair-room class have been actually as numerous as both single and three-room dwellings together.

The recent house inspection shewed, among other things, that 38 per cent. of the dwellings in Newcastle consists of tenements of one, two, or three rooms each. This brings into much greater prominence the fact just stated, viz. : That of the dwellings invaded by Small-pox during the year, 76 per cent. were of the smaller class, and of those invaded by Enteric and Scarlet Fevers above 65 per cent. were of the same character. Again, the actual number of occupied pair-roomed dwellings invaded is about equal to the single rooms and three-room dwellings together, which explains the *primâ facie* remarkable fact, that as many dwellings in the first of these classes (pair-rooms) have been invaded by the three diseases as in the two latter classes combined.

### *Character of the Isolation Adopted.*

Character of the isolation.

*Other Preventive Measures.*—The foregoing observations apply to the number of rooms in different dwellings. The following Table shows the character of the isolation observed and the extent to which other preventive measures were used by those on whose households infectious sickness was reported during the year.

Other preventive measures adopted.

SUMMARY—ISOLATION OF SICK ROOMS AND PRECAUTIONS TAKEN, &C.

| DISEASE. | Total House-holds Infected | ISOLATION. | | | | No precautions being taken at time of Inspection | Removal to Hospital agreed to. (Number of Patients.) | Percentage of cases removed to Hospital to total notified. |
|---|---|---|---|---|---|---|---|---|
| | | Fair. | Moderate. | Imperfect. | Not at all. | | | |
| | | | | | | | | Per cent. |
| Small-pox ... ... | 43 | ... | 2 | 23 | 18 | 17 | 26 | 37 |
| Typhus ... ... | 8 | ... | ... | 2 | 6 | 7 | 6 | 67 |
| Enteric Fever ... | 213 | 2 | 24 | 99 | 85 | 83 | 36 | 14 |
| Continued Fever ... | 49 | ... | 4 | 24 | 21 | 27 | 5 | 8 |
| Scarlet Fever ... | 747 | 14 | 105 | 324 | 300 | 383 | 38 | 3 |
| Diphtheria ... | 70 | 2 | 13 | 24 | 29 | 26 | 1 | 1 |
| Total (1885) ... | 1,130 | 18 | 148 | 496 | 459 | 543 | 112 | ... |
| Percentage (1885) | ... | 1·6% | 13% | 43% | 41% | 48% | ... | 6·5% |
| Corresponding return for the year 1884 :— | | | | | | | | |
| Total (1884) ... | 1,728 | 151 | 99 | 188 | 1,240 | 838 | 182 | ... |
| Percentage (1884) | ... | 9% | 6% | 11% | 72% | 48% | ... | 6·6% |

In a total of 1,130 infected houses, the isolation adopted in 1·6 per cent. is returned as being *fair;* in 13 per cent. it was *moderate;* in 43 per cent. it was *imperfect,* and in 41 per cent. there was *no isolation at all.* In 48 per cent. of the households *no precautions* to prevent spread of infection were being taken at the time of inquiry.

Removal to Hospital

The extent to which voluntary removal of the patients to Hospital was effected varied, as usual, largely in the different diseases. Thus in Small-pox 37 per cent. of the cases notified in 43 households were removed ; in Typhus, 67 per cent. of the cases, in a total of 8 houses ; in Enteric Fever 14 per cent. of the cases in 213 households ; in Continued Fever 8 per cent. of the cases in 49 households ; of Scarlet Fever *only* 3 *per cent. of the cases in no less than* 747 *households;* and in Diphtheria only 1 per cent. in 70 households.

Scarlet Fever most extensive and least isolated.

Scarlet Fever, therefore, the disease of greatest prevalence, has been also the disease in which isolation has been most neglected.

Need of compulsory isolation.

The great indication to which the facts disclosed in the above statistics unmistakably point, is, that unless the prevention of infectious disease is to be Utopian and chimerical, the work of sanitary reform must be more energetic than it has yet been as regards the isolation of the sick. There is only one thoroughly efficacious and practicable way to keep people free from fevers, and that is to remove the infected to a safe distance from others. Where this is not done, the many—generally by no fault of their own—are made to suffer through the few, from an evil they are powerless to avoid, and from which we are alike in charity and in policy bound to protect them. To insist on the complete isolation of infected patients is no unkindness either to the sick or their friends. The free admission to Hospital of his fever-stricken child is a threefold boon to a poor man ; it relieves him from the extra strain which illness in the house puts on his slender resources ; it secures for his ailing little one the fresh air, quiet, support, and comforts he is unable to provide for it at home ; and it protects the rest of his family from danger.

Proper disinfection is impracticable in tenement houses.

To rely on disinfection in a tenement house is as vain as to hope for isolation there. What possibility is there of charging with the fumes of sulphur or the vapour of carbolic acid the air of a room in which the patient and his family live and sleep ? Even after the illness is over, to what place can they be allowed to go whilst the final disinfection is being done ?

Power to compel the removal of the infective sick to Hospital from dwellings where isolation is impracticable is greatly needed.

Removal to Hospital, a boon to the poor.

As in the case of the compulsory notification of the diseases in question, which has now worked harmoniously here for upwards of three years, so the power to compel removal of suitable cases of such diseases would, if legalized, be generally accepted as for the best. The separation of a sick child from its parents may seem a strong measure but there is no choice of remedies, and this one if promptly, kindly, and judiciously applied would in the end be acknowledged with gratitude by those brought into the sphere of its direct operation.

*Infected households in relation to occupation elsewhere.*—Some idea of the degree of liability to which the public are exposed to infection through businesses and occupations carried on or assisted in by persons residing on infected premises and working elsewhere, may be gathered from the following Table :—

## SUMMARY OF OCCUPATIONS IN WHICH PERSONS RESIDING ON INFECTED PREMISES WERE ENGAGED ELSEWHERE AT THE TIME OF INQUIRY.

Summary of occupations followed elsewhere by residents on infected premises.

| Occupations (after the Classification in the Census Tables). | Small-pox. | Typhus. | Enteric Fever. | Simple Continued Fever. | Scarlet Fever. | Diphtheria | TOTALS. |
|---|---|---|---|---|---|---|---|
| Government of the Country (Postal Officials, Police, etc.) ... ... | 1 | ... | 15 | 1 | 20 | 4 | 41 |
| Defence of the Country* ... ... | ... | ... | 1 | ... | ... | ... | 1 |
| Professional Classes, viz:— | | | | | | | |
| Schoolmasters and Teachers ... | ... | ... | 3 | ... | 4 | ... | 7 |
| Medical, etc. ... ... ... | ... | ... | 3 | ... | 5† | 1 | 9 |
| Others ... ... ... ... | ... | ... | 2 | ... | 14 | 1 | 17 |
| Domestic Service ... ... ... | ... | 2 | 4 | 1 | 15 | 1 | 23 |
| Commercial Occupations (Travellers, Clerks, Agents, etc.) ... | 2 | .. | 20 | 6 | 66 | 10 | 104 |
| Conveyers of Men, Goods, or Messages ... ... ... ... | 9 | ... | 23 | 5 | 74 | 5 | 116 |
| Persons engaged in Agriculture ... | ... | ... | 2 | ... | 1 | ... | 3 |
| Occupations about Animals ... | 4 | ... | 1 | 1 | 2 | 2 | 10 |
| Workers and Dealers in Books, Prints, etc. ... ... ... | 2 | ... | 5 | 1 | 16 | 1 | 25 |
| Workers and Dealers in Machines and Implements ... ... ... | 11 | 1 | 42 | 7 | 90 | 8 | 159 |
| Workers and Dealers in Houses, Furniture, and Decorations ... | 6 | ... | 33 | 8 | 69 | 7 | 123 |
| Workers and Dealers in Carriages and Harness ... ... ... | ... | ... | 3 | 1 | 6 | ... | 10 |
| Persons employed in Shipyards ... | ... | ... | 7 | 1 | 22 | 4 | 34 |
| Workers and Dealers in Chemicals or Compounds ... ... ... | ... | ... | ... | ... | 4 | ... | 4 |
| Workers and Dealers in Tobacco... | ... | ... | 2 | ... | 3 | ... | 5 |
| Workers and Dealers in Food and Lodging (Publicans, Butchers, Provision Dealers, etc.) ... | 6 | 1 | 21 | 4 | 67 | 2 | 101 |
| Workers and Dealers in Textile Fabrics (Drapers, etc.) ... ... | ... | 1 | 4 | ... | 13 | 1 | 19 |
| Workers and Dealers in Dress ... | ... | 4 | 21 | 4 | 46 | 6 | 81 |
| Do. in Animal Substances (not Food, etc.) ... | ... | ... | 2 | 1 | 10 | ... | 13 |
| Workers and Dealers in Vegetable Substances (not Food) ... ... | ... | ... | 4 | ... | 6 | 1 | 11 |
| Workers and Dealers in Mineral Substances (Miners, Blacksmiths, etc.) | 4 | ... | 5 | 1 | 41 | 2 | 53 |
| Workers and Dealers in Unspecified Commodities, viz:— | | | | | | | |
| Lamplighter ... ... ... | ... | ... | ... | ... | 1 | ... | 1 |
| Labourers ... ... ... | 5 | ... | 9 | 1 | 44 | 7 | 66 |
| Pawnbrokers ... ... ... | ... | ... | ... | ... | 2 | ... | 2 |
| Enginemen and Firemen (undefined) ... ... ... | ... | ... | ... | ... | 3 | ... | 3 |
| Hawkers ... ... ... | 1 | ... | ... | ... | 1 | ... | 2 |
| Contractors ... ... ... | ... | ... | 2 | ... | ... | ... | 2 |
| Message Boys ... ... ... | 1 | ... | 2 | ... | 2 | ... | 5 |
| Machinists (undefined) ... | ... | ... | ... | 1 | 1 | ... | 2 |
| Workers and Dealers in Refuse Matters (Sweeps & Rag Dealers) | ... | ... | 3 | ... | 4 | ... | 7 |
| Occupation not stated ... ... | 4 | 1 | 18 | 8 | 110 | 10 | 151 |
| Totals ... ... ... | 56 | 10 | 257 | 52 | 762 | 73 | 1,210 |
| Totals of Inquiries Made during 1885 at Infected Households ... | 43 | 8 | 213 | 49 | 747 | 70 | 1,130 |

* Soldier. † One of these is a midwife.

Pursuing the inquiry begun last year, respecting the liability to the spread of infection to the public through persons residing on infected premises and engaged in occupations elsewhere, we find that during 1885, 1,210 such persons were returned in a total of 1,130* inquiries made into cases of infectious disease of different kinds (see above Table). The average of one, or slightly over one, occupant, engaged elsewhere out of each infected house, is maintained in each of the diseases in the Table. The occupation furnishing the greatest number of such persons (159) is that of workers and dealers in machines and implements. Next to these come workers and dealers in houses, furniture, and decorations, of whom 123 were found to be resident on infected premises. These persons are from their calling brought into close contact with the residents of private houses. The same remark applies to conveyers of men, goods, and messages, of whom 116 were found to come from infected houses. In the professional class, the number includes 9 medical men, and 7 persons engaged in education, whose duties bring them either to the bedside of the sick or into continued association with the young. Domestic servants, on the one hand, not unfrequently introduce into the houses of their masters infectious disease which they have contracted at their own homes or elsewhere outside ; and on the other, when falling sick are sent home to develop infection there. There have been during the year 23 cases of persons engaged in such service whilst coming from infected homes.

Trade articles and spread of infection.

Books and prints, food, drink, textile fabrics and dress are commodities which it is well known very readily retain and convey infection. Persons engaged in the preparation or sale of such articles are brought into frequent communication with the public in numerous ways, and if resident on infected premises, as the Table shows them to have been, in an aggregate 226 instances during the year, the amount of mischief they may do in the absence of precautions is incalculable.

It is unnecessary to pass in review, *seriatim*, the other headings of the Table. Considering the very negative character of the isolation of the infected at the houses where most of the persons referred to live—the details of which isolation have already been given—the spread of disease, although the means of tracing it from case to case is involved in inextracable confusion and obscurity, need be no matter of surprise.

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*Exclusive of 11 cases of Puerperal Fever.

## FEVER AND SMALL-POX HOSPITALS.

Work at the Hospitals for Infectious Diseases.

128 patients have been admitted to the Fever and Small-pox Hospitals—

| | | |
|---|---|---|
| 26 | suffering from | Small-pox. |
| 6 | „ | Typhus. |
| 36 | „ | Enteric Fever. |
| 38 | „ | Scarlet Fever. |
| 9 | „ | Simple Continued Fever (Febricula). |
| 1 | „ | Diphtheria. |
| 3 | „ | Measles. |
| 9 | „ | Other diseases. |

For other details as to the above, see Appendix A, Table XI.

The Small-pox Hospital has been in active use during the first half of the year. The last patient was discharged on June 12th.

The Small-pox Convalescent Home has not been in use since June, 1884.

## EXPENSE OF MAINTENANCE.

Expense of Maintenance of Patients.

Of the patients admitted, the expense of maintenance is charged as under :—

| | Cases. |
|---|---|
| To the Sanitary Authority ... ... ... ... ... | 114 |
| „ private guarantors ... ... ... ... ... ... | 11 |
| „ the governing bodies of public institutions ... ... | 3 |
| Totals ... ... ... ... ... | 128 |

Illustration of occupation of all the Wards by a small number of Patients.

In June, there were under treatment at the same time, in the wards of the Fever Hospital, the following diseases :—

| | Cases. | |
|---|---|---|
| Typhus ... ... ... | 1 | (in a separate ward). |
| Enteric Fever ... ... | 1 | „ „ |
| Scarlet Fever ... ... | 2 | (in the same ward). |
| Measles ... ... ... | 3 | „ „ |
| Continued Fever ... ... | 1 | (in a separate ward). |
| Diphtheria ... ... | 1 | „ „ |
| Total ... ... | 9 | cases (in six wards). |

All the wards were occupied, each by a separate disease. In the event of an adult requiring admission whilst suffering from any of these diseases, and being of a different nature to those in Hospital at the time, the case could not have been received, there being then no ward to place the case in. Happily, no such contingency arose.

The circumstance illustrates the necessity of having numerous wards, and the advantage of small ones for the reception of one or two cases.

## CHOLERA PRECAUTIONS.

Cholera Precautions.

The continued prevalence of Cholera on the Continent has required the maintenance of strict general sanitary supervision during the year, the results of which appear elsewhere in this report. Fortunately, no case of Cholera, or even one of suspicious character, has come under notice, consequently it has not been requisite to put into force any special measure. Had any such case occurred arrangements were made for its prompt isolation and treatment in the Small-pox Convalescent Home at Byker, which has stood empty since the summer of the year before last, and having been thoroughly disinfected and cleansed, was fit for the purpose.

Local Government Board Inquiries.

In reference to Cholera precautions, two Inspectors of the Local Government Board, viz., Prof. De Chaumont and Dr. Blaxall, have on separate occasions during the year visited Newcastle and the Tyne for the purpose of inquiry into the general and special steps taken to put the City and Port in a proper condition to meet and resist the disease.

## BURIAL OF CORPSES.

Burials of Corpses under Local Act.

Under the 47th Section of the Newcastle-upon-Tyne Improvement Act, 1882, Orders of Justice have been obtained during the past year as follows:—

| | |
|---|---|
| For Burial of Corpses from rooms in which persons live or sleep ... ... ... | 15 |
| For Burial of Infected Corpses from Fever or Small-pox Hospital ... ... ... | 7 |
| For Removal of Corpses to Mortuary and subsequent Burial ... ... ... | — |
| Total ... ... ... ... | 22 |

## SUMMARY OF REPORTS, &c.

Summary of Reports, &c., made during the year.

Among other matters included in fortnightly reports to the Sanitary Committee during the year have been the following :—

*Dwellings—*

List of tenemented dwellings unfit for habitation (in several streets and courts).

Special return of cellar dwellings (in George Street West).

*Trades, &c.—*

Fish frying (nuisance from).

Regulation of Triperies.

Licensing of slaughter-houses.

Tar distilling at the Teams, Gateshead (nuisance from).

*Ouseburn Pollution.*

*Diseases, &c.—*

Sub-district Death-rates, as affected by Death-rates in Public Institutions.

Cholera precautions.

Measles in schools.

Disinfection of bedding, &c., declined by a householder.

Numerous matters in connexion with spread of infection.

## GENERAL WORK OF THE HEALTH DEPARTMENT.

General Work of the Health Department.

Nuisance Removal.

(*a.*)—*Nuisance Removal.*—5,004 cases of nuisance have been attended to by the Inspectors of the Department during the year. (For details, see Appendix A, Table XVI.)

Disease Inquiry.

(*b.*)—*Infectious Disease Inquiry and Disinfection.*—1,687 cases of infectious disease have been inquired into by the Special Inspectors, and the houses or room connected therewith disinfected, as compared with 2,751 during the year before. The bedding and other infected articles have been removed to the Disinfecting Station, and after purification they have been returned to the owners. (For list see Appendix A, Tables XIV. and XV.)

### *Compensation granted on account of Infection.*

Compensation.

In three cases* compensation amounting in the aggregate to £2 8s. 5d. has been allowed by the Sanitary Committee to the occupiers of infected houses for provisions, fruit, &c., destroyed.

* Scarlet Fever.

Food Inspection.

(*c.*)—*Food Inspection.*—The Report of Inspector Hedley on suspected and unwholesome *Butchers' Meat* or other flesh examined during the year, is given in Appendix A, Table XII. A Table of Fish inspected at the Fish Market in the Close is given in Appendix A, Table XIII.

Dairies, etc.

(*d.*)—*Inspection of Dairies, Cowsheds, and Milk-Shops.*—During the past year 1,845 inspections of cowsheds and milk-shops have been made. Several evils have been remedied on verbal notice being given. Two formal notices have been served on occupiers to improve the ventilation, drainage, &c., of the cowsheds occupied by them. In one case the occupier declined to make the necessary improvements, and the place has been closed; in the other case the work is proceeding.

Nine applications have been made to begin to occupy old buildings as cowsheds, of which applications five were granted by the Sanitary Committee on condition that the necessary alterations were carried out. Four applications were declined.

One new building has been occupied as a cowshed, a plan having been submitted to and passed by the Town Improvement Committee.

Seven outbreaks of infectious disease have been reported in the families of dairymen, viz., three of Scarlet Fever, one of Enteric Fever, one of Diphtheria, and two of Measles. On report of the cases they were at once attended to, and instructions were given to prevent any communication between the milk supply and the infected person or premises. No spread of infection from any of the cases by means of milk is known to have occurred.

Slaughter Houses.

(*e.*)—*Slaughter-Houses.*—The slaughter-houses in the City continue in about the same condition as when last reported on. Several of those situated in backyards, etc., in different parts of the City cannot be much improved owing to their situation; nothing short of closing them altogether will remove the evils of which they are the cause. Many have no carts or other vehicles for the removal of refuse after slaughter, or accommodation to keep these in. Several complaints have been received of refuse being deposited in adjacent middens. On communicating with the occupiers of such slaughter-houses the nuisance has been abated; but the same thing is liable to recur.

Of the places hitherto licensed as slaughter-houses 12 were used as triperies. These have been struck off the list, and tripe preparing is now dealt with by the Inspector of Nuisances as an offensive trade. At the present time there are 133 licensed places, of which 77 are licensed for a term of twelve months, and 56 (on account of special sanitary defects) for six months only. Five applications have been made to the Sanitary Committee for licenses to use premises as slaughter-houses. After hearing the report of their officers thereon, the Committee granted one of the applications, and refused the others.

Well-Water.

(*f.*)—*Well-Waters Analysed.*—One sample of well-water was drawn and submitted for analysis in March. The report of the City Analyst did not justify the institution of proceedings for the closure of the well.

Bakehouses.

(*g.*)—*Bakehouse Regulation.*—As stated in last Report, the inspection of bakehouses is now undertaken by the Health Department. A number of the existing bakehouses are old and in a more or less unsanitary state.

Application was made to the Sanitary Committee for permission to re-open a bakehouse at Leighton's Buildings, Quality Row, Byker, which had long been disused. The request was granted on certain conditions, which have not been complied with, and the bakehouse has not yet been re-opened.

## HOUSES BUILT DURING THE YEAR 1885.

House-building in 1885.

The following return of houses built during the year under report is supplied through the courtesy of the City Engineer:—

| Newcastle-upon-Tyne. | Houses Self-contained. | Houses of Two Flats each. |
|---|---|---|
| Elswick Township ... ... ... ... | 41 ... | 168 |
| Westgate Township ... ... ... ... | 1 ... | 16 |
| Byker Township ... ... ... ... | 22 ... | 178 |
| Jesmond Township ... ... ... ... | 42 ... | — |
| Heaton Township ... ... ... ... | 95 ... | 30 |
| St. Andrew's Parish ... ... ... ... | 28 ... | 9 |
| St. John's Parish ... ... ... ... | — ... | — |
| St. Nicholas' Parish ... ... ... ... | — ... | — |
| All Saints' Parish ... ... ... ... | — ... | — |
| | 229 | 401 |
| | | (for 802 families.) |

New accommodation.

New accommodation has thus been provided for 1,031 families, or, at the rate of 5 persons to a family, 5,155 persons, as compared with accommodation estimated for 4,210 persons provided during 1884.

Plans examined.

The plans submitted for approval have included designs for a number of habitations, in addition to the foregoing, many of which were rejected by the Town Improvement Committee, or, for other reasons, have not been carried out. Plans for 958 new houses (self-contained or in flats) have been examined by the Medical Officer of Health for sanitary requirements. The conveniences proposed for these were as under :—

Conveniences.

CONVENIENCES.

| Water-closets. | | Ash-closets. | Privies. | "Fowler" Closets. |
|---|---|---|---|---|
| Indoor. | Outdoor. | | | |
| 88 | 878 | 225 | 180 | 8 |

Defects on Plans for proposed Houses.

In the plans submitted a considerable number of sanitary defects were, as usual, observed. Some only of these defects come within the provisions of the building regulations. By far the most frequently recurring defect is that of *Small Bed Room*, of which 394 instances are noted. An idea of the size of the apartments referred to will be best gained from the following illustrations :—

Small Bed Rooms.

Of twenty "small bedrooms," the different plans for which were examined on the same day, the average capacity was a trifle over 745 cubic feet each. The average height was 9 feet 6 inches, thus leaving a floor space of only 78·4 square feet (say 8 feet wide by 9·8 feet long).

In twenty of the smallest of the bedrooms proposed to be built during the year the average capacity was under 555 cubic feet per room, ranging from a maximum capacity of 684 to a minimum of 396 cubic feet. Of these, ten contained less than 600, and five less than 500 cubic feet each.

In a large number of the rooms in question no fireplace was provided.

The existing building regulations do not prohibit such rooms in new buildings. Provided that every habitable room, except in the roof, be not less than nine feet in height, and "one habitable room at least on each floor . . . have an area of at least one hundred and eight superficial feet of floor," the dimensions of all other rooms, however small, in a house, are beyond the scope of the regulations.

Defective Ventilation.

The next sanitary defect in order of frequency in the plans examined was that of *Bedrooms without fireplace or special means of ventilation*, of which 195 instances were observed, including the cases of small bedrooms above described.

Deficient Yard Space.

The next most frequent sanitary fault in the proposed plans was that of *Deficient Yard Space*, of which there were 61 instances. The building regulations provide that at least one-fourth of the area of the ground of each building and its out-offices from the front wall of the building to the outer back and side boundary of the premises shall remain open and unbuilt on ; and the carrying out of this requirement is, it is believed, strictly seen to. The desire to make the most of sites intended for small houses or dwellings in flats, &c., sometimes leads to the laying out of yards in curious devices so as to comply with the bye-laws.

Frequently on first deposit of plans the regulations as to yard space is found to have been ignored.

Other defects on Plans.

Other defects, noted in order of frequency, are as follows:—

W.C. in improper position.
Stable near dwellings.
Small rooms (kitchens, &c.)
Waste pipes not disconnected.
Ashpits open.
W.C. and bath in same chamber.
Interference with light or ventilation of adjoining property.
Cowbyre near dwellings.
Defective drainage.
Height of rooms deficient.
" Well-rooms."
Convenience insufficient.
Soil pipe inside house.
,, not ventilated above eaves.
Bedroom abutting on stable, &c.

NEWCASTLE-UPON-TYNE.

# ANALYSIS OF THE MORTALITY

OF THE

TEN YEARS, 1874-1883.

# ANALYSIS OF THE MORTALITY OF THE TEN YEARS,

# 1874–1883.

In addition to the ordinary statistics of the present Annual Report, which is the thirteenth made by the writer, it appears proper to review the mortality of the years that have passed since these Reports were begun. For various reasons, however, it has been decided to limit the inquiry to the period of ten years—1874-1883. The returns of this decenniad form a large and useful basis for observation.

Total deaths in decade.

The total number of deaths registered in Newcastle during the ten years ended December, 1883, is 34,480. The mean annual death-rate of the period, calculated on the mean estimated populations of the two years 1874 and 1883, is 24·2 ; or, if calculated on the enumerated population of the census of 1881, 23·7 per 1,000 living.

In Appendix B will be found a series of Tables showing the deaths from all causes at all ages, and from the chief causes at different periods of age during the ten years in question.

The deaths may be examined under the heads of (1) *Cause*, (2) *Age*, and (3) *Time*. Such examination must at present of necessity be brief.

## 1.—Causes of Death.

Causes of death.

The term "cause" is here, of course, extremely limited in its application, and includes only the disease, injury, or other condition registered as the cause of death.

The deaths from all causes and at all ages during the decenniad, divided into classes and orders, shewing number of deaths and percentage to total of each of the different sub-divisions, are as follows :—

### 1874-1883.—SUMMARY OF DEATHS FROM ALL CAUSES AND AT ALL AGES, ACCORDING TO THE CLASSIFICATION* OF THE REGISTRAR GENERAL.

| | No. of Deaths. | Percentage to Total (all causes). |
|---|---|---|
| CLASS I.—ZYMOTIC DISEASES. | | |
| 1. Miasmatic ... ... ... | 5,898 | 17·13 |
| 2. Enthetic ... ... ... | 223 | ·64 |
| 3. Dietic ... ... ... ... | 294 | ·86 |
| 4. Parasitic... ... ... ... | 43 | ·12 |
| CLASS II.—CONSTITUTIONAL DISEASES. | | |
| 1. Diathetic ... ... ... | 788 | 2·29 |
| 2. Tubercular ... ... ... | 4,987 | 14·46 |
| CLASS III.—LOCAL DISEASES. | | |
| 1. Nervous System ... ... | 4,803 | 13·93 |
| 2. Circulatory ,, ... ... | 1,974 | 5·73 |
| 3. Respiratory ,, ... ... | 5,250 | 15·21 |
| 4. Digestive ,, ... ... | 1,332 | 3·84 |
| 5. Urinary ,, ... ... | 549 | 1·59 |
| 6. Reproductive ,, ... ... | 100 | ·29 |
| 7. Locomotive ,, ... ... | 87 | ·26 |
| 8. Integumentary ... ... | 69 | ·20 |
| CLASS IV.—DEVELOPMENTAL DISEASES. | | |
| 1. Children ... ... ... | 1,212 | 3·51 |
| 2. Adults ... ... ... ... | 285 | ·83 |
| 3. Old people ... ... ... | 1,597 | 4·63 |
| 4. Nutrition ... ... ... | 2,308 | 6·69 |
| CLASS V.—VIOLENT DEATHS. | | |
| 1. Accident or Negligence ... | 1,102 | 3·18 |
| 2. Homicide ... ... ... | 27 | ·08 |
| 3. Suicide ... ... ... ... | 96 | ·28 |
| 4. Executions ... ... ... | 1 | — |
| Violent Deaths not classed ... ... ... | 183 | ·53 |
| Sudden Deaths— | | |
| Cause unascertained ... ... ... | 132 | ·38 |
| Cause not specified, or ill-defined ... ... | 1,140 | 3·31 |
| TOTAL... ... ... ... | 34,480 | 100·0 |

Prominent classes and sub-classes of disease.

Of the 25 different orders of disease, 6 have each caused upwards of 5 per cent. of the total mortality. These are given below in order of numerical magnitude :—

| | Percentage to Total. |
|---|---|
| Deaths from (1) Miasmatic Diseases ... ... ... | 17·13 |
| ,, (2) Respiratory ,, ... ... ... | 15·21 |
| ,, (3) Tubercular ,, ... ... ... | 14·46 |
| ,, (4) Diseases of the Nervous System ... | 13·93 |
| ,, (5) ,, ,, Nutrition ... ... ... | 6·69 |
| ,, (6) ,, ,, the Circulatory System ... | 5·73 |

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* The diseases included in the different orders are given in Appendix B.

The first of these orders chiefly consists of Infectious and Diarrhœal diseases; the second comprises Bronchitis, Inflammation of the Lungs, &c.; the third, Scrofula, Abdominal and Pulmonary Consumption, and Water in the Head; the fourth, Apoplexy, Paralysis, Convulsions, and all Diseases of the Brain or Nervous System; the fifth, Atrophy and Debility; and the last, Diseases of the Heart and Blood Vessels.

Majority of deaths are due to a small number of diseases.

One of the most noteworthy features in the returns under consideration is the fact that a large majority of the deaths have been caused by a comparatively small number of diseases. Thus, of 114 different diseases, &c., in the general Table of Causes of Death, which is framed after the classification of the Registrar General, upwards of 83 per cent. of the mortality of the ten years is due to 24 of such causes, of which 10 are accredited with 57 per cent. of the entire mortality, 5 of the latter causing no less than 36 per cent. of the deaths. The different diseases, &c., in question, together with the percentage of the deaths they have given rise to, are stated below in order of numerical magnitude.

Principal Diseases causing Death.

Total Deaths registered during 10 years, 1874-83=34,480 among which are included the following:—

| CAUSE OF DEATH. | No. of Deaths in Ten Years. | Percentage to Total from all causes. |
|---|---|---|
| Phthisis ... ... ... ... ... ... | 3,348 | 9·71 |
| Bronchitis ... ... ... ... .. | 3,226 | 9·36 |
| Atrophy and Debility ... ... ... ... | 2,308 | 6·69 |
| Heart Diseases ... ... ... ... ... | 1,885 | 5·47 |
| Convulsions ... ... ... ... ... | 1,814 | 5·26 |
| Old Age ... ... ... ... ... ... | 1,597 | 4·63 |
| Diarrhœa ... ... ... ... ... ... | 1,572 | 4·56 |
| Scarlet Fever ... ... ... ... ... | 1,357 | 3·94 |
| Brain Disease, &c. ... ... ... ... | 1,295 | 3·76 |
| Pneumonia ... ... ... ... ... | 1,254 | 3·62 |
| Cause not specified or ill-defined ... ... | 1,140 | 3·31 |
| Tabes Mesenterica ... ... ... ... | 866 | 2·51 |
| Paralysis ... ... ... ... ... ... | 829 | 2·40 |
| Whooping Cough ... ... ... ... | 823 | 2·39 |
| Premature Birth... ... ... ... ... | 725 | 2·10 |
| Apoplexy ... ... ... ... ... .. | 689 | 2·00 |
| Cancer ... ... ... ... ... ... | 627 | 1·82 |
| Scrofula ... ... ... ... ... ... | 600 | 1·74 |
| Fractures and Contusions (Accidents) ... | 552 | 1·60 |
| Liver Disease, &c. .... ... ... ... | 499 | 1·42 |
| Measles ... ... ... ... ... ... | 491 | 1·42 |
| Enteric (or Typhoid) Fever ... ... ... | 423 | 1·23 |
| Lung Disease* ... ... ... ... ... | 402 | 1·16 |
| Teething ... ... ... ... ... ... | 392 | 1·14 |
| Total (24 Causes)... ... ... | 28,714 | 83·24 |

*Forms of Respiratory Disease other than Laryngitis, Pleurisy, Asthma, and those named above.

### 2.—AGE AT DEATH.

Age at death.

The ages at death of persons deceased during the decenniad, divided into seven different periods, with the number of deaths in each period, and their proportion to the whole, are stated below :—

SUMMARY OF DEATHS FROM 1874 TO 1883, ARRANGED IN AGE-PERIODS.

| Age Periods. | No. of Deaths. | Percentages to Total. |
|---|---|---|
| Under 1 year ... ... ... | 9,207 | 26·71 |
| 1 year and under 5 years ... | 5,877 | 17·04 |
| 5 years ,, 20 ,, ... | 2,861 | 8·30 |
| 20 ,, ,, 40 ,, ... | 4,763 | 13·81 |
| 40 ,, ,, 60 ,, ... | 5,382 | 15·61 |
| 60 ,, ,, 80 ,, ... | 5,394 | 15·64 |
| 80 and upwards ... ... ... | 996 | 2·89 |
| Total ... ... ... | 34,480 | 100·0 |

Proportion of deaths of children.

Upwards of 43 per cent. of the general mortality is due to deaths of children under 5 years of age. The deaths of children under 1 year cause more than 26 per cent. of the whole.

The mere number of deaths at a given period of age, or the percentage of such number to the whole, does not give a true idea as to the relative death-rate of that period in comparison with other periods. As the death-rate of an entire population is calculated on the number of the living at all ages, so the death-rate of a given age-period must be based on the number of persons living at that age. The number of persons at each period of age living in Newcastle in the year 1881, as stated in the census returns, has been adopted as the basis of calculations in the following Table :—

Death-rates at different age-periods.

| Age-periods. | Population at Census, 1881. | Mean Annual Death-rate in 1874-83 per 1,000 calculated on persons living at the same Age-period in 1881. |
|---|---|---|
| Under 1 year ... ... ... | 4,437 | 207·5 |
| 1 year and under 5 years ... | 16,120 | 36·5 |
| 5 years ,, 20 ... ... | 47,377 | 6·0 |
| 20 ,, ,, 40 ... ... | 45,711 | 10·4 |
| 40 ,, ,, 60 ... ... | 23,634 | 22·8 |
| 60 ,, ,, 80 ... ... | 7,635 | 70·6 |
| 80 ,, and upwards ... ... | 445 | 223·8 |

The above rates, not being, it should be remembered, calculated on the entire population, do not bear any relation to the general death-rate at all ages which is commonly so calculated. The object of their introduction here is to show relatively the danger to life at different age-periods, apart from other considerations. By a very long way, the most fatal periods of life are those of infancy and extreme old age. The first year of life is almost six times as fatal as the aggregate of the four following years. From the 5th to the 20th year of age is the least fatal period, being respectively only *one thirty-fifth* and one thirty-seventh part as fatal as the extremes of life. After 20 years of age the rate of mortality is almost trebled for every successive 20 years of age.

### *Chief Causes of Death at different Age-periods.*

Chief causes of death at different age-periods.

In Appendix B the diseases which have been most fatal to life at various age-periods are stated in order of relative magnitude of number of deaths registered under the respective heads.

### *Prominent Factors of death-rates at Age-periods.*

The diseases contributing most largely to the death-rates in question at different age-periods are as follow :—

| CAUSE OF DEATH. | Mean Annual Death-rate per 1,000 living at the same Age-period at the Census of 1881. |
|---|---|
| *1st Period—Under* 1 *Year* :— | |
| Atrophy and Debility ... | 43·2 |
| Convulsions ... ... ... | 31·7 |
| Bronchitis ... ... ... | 21·7 |
| Diarrhœa ... ... .. | 21·4 |
| All other (71) causes ... | 89·5 |
| Total ... ... | 207·5 |
| *2nd Period*—1 *Year & under* 5 *Years* :— | |
| Scarlet Fever ... ... | 5·1 |
| Bronchitis ... ... ... | 4·8 |
| Whooping Cough ... ... | 2·8 |
| Diarrhœa ... ... ... | 2·4 |
| Tabes Mesenterica ... ... | 2·4 |
| Convulsions ... ... ... | 2·3 |
| Measles ... ... ... | 2·2 |
| Brain Disease, &c. ... ... | 2·1 |
| Pneumonia ... ... ... | 2·1 |
| All other (67) causes ... | 10·3 |
| Total ... ... | 36·5 |
| *3rd Period*—5 *Years and under* 20 :— | |
| Phthisis ... ... ... | 1·1 |
| Scarlet Fever ... ... | 0·9 |
| Scrofula ... ... ... | 0·4 |
| Brain Disease, &c. ... ... | 0·4 |
| Enteric or Typhoid Fever... | 0·3 |
| Heart Disease, &c. ... ... | 0·3 |
| Pneumonia ... ... ... | 0·2 |
| All other (80) causes ... | 2·4 |
| Total ... ... | 6·0 |

| CAUSE OF DEATH. | Mean Annual Death-rate per 1,000 living at the same Age-period at the Census of 1881. |
|---|---|
| *4th Period*—20 *Years and under* 40 :— | |
| Phthisis ... ... ... | 3·8 |
| Heart Disease, &c. ... ... | 0·7 |
| Pneumonia ... ... ... | 0·4 |
| Childbirth ... ... ... | 0·4 |
| Fractures and Contusions ... | 0·4 |
| Causes not specified or ill-defined ... | 0·4 |
| Enteric or Typhoid Fever... | 0·4 |
| Brain Disease, &c. ... ... | 0·3 |
| All other (88) causes ... | 3·6 |
| Total ... ... | 10·4 |
| *5th Period*—40 *Years and under* 60 :— | |
| Phthisis ... ... ... | 3·8 |
| Heart Disease, &c. ... ... | 3·0 |
| Bronchitis ... ... .. | 1·9 |
| Cancer ... ... ... | 1·4 |
| Apoplexy ... ... ... | 1·1 |
| Liver Disease, &c. ... ... | 1·0 |
| Causes not specified or ill-defined ... | 1·0 |
| Paralysis ... ... ... | 1·0 |
| Pneumonia ... ... ... | 1·0 |
| All other (84) causes ... | 7·6 |
| Total ... ... | 22·8 |

| CAUSE OF DEATH. | Mean Annual Death-rate per 1,000 living at the same Age-period at the Census of 1881. |
|---|---|
| *6th Period—60 Years and under 80 :—* | |
| Old Age | 12·3 |
| Bronchitis | 10·2 |
| Heart Disease, &c. | 8·8 |
| Paralysis | 6·1 |
| Apoplexy | 4·5 |
| Causes not specified or ill-defined | 3·4 |
| Cancer | 2·5 |
| All other (79) causes | 22·8 |
| Total | 70·6 |

| CAUSE OF DEATH. | Mean Annual Death-rate per 1,000 living at the same Age-period at the Census of 1881. |
|---|---|
| *7th Period—80 Years and upwards :—* | |
| Old Age | 142·7 |
| Bronchitis | 19·8 |
| Paralysis | 11·7 |
| Heart Disease, &c. | 10·1 |
| Apoplexy | 6·9 |
| All other (36) causes | 32·6 |
| Total | 223·8 |

## *Prevalent Diseases traced through different periods of life.*

Prevalent diseases traced through differen age-periods.

From the foregoing Tables an idea may be formed as to the predominating death-causes at different ages, in proportion to population at those ages. It is interesting to trace each of the above different diseases and certain others, separately, through the different age-periods, as is done in the following Table :—

### MEAN ANNUAL DEATH-RATES FROM PROMINENT DISEASES AND CAUSES LIABLE TO FLUCTUATION AT DIFFERENT AGE-PERIODS, PER 1,000 LIVING AT THE RESPECTIVE AGE-PERIODS AT THE CENSUS OF 1881.

| CAUSE OF DEATH. | AGE PERIODS. | | | | | | |
|---|---|---|---|---|---|---|---|
| | **1st.** Under 1 Year of Age. | **2nd.** 1 Year and under 5 Years. | **3rd.** 5 Years and under 20 Years. | **4th.** 20 Years and under 40 Years. | **5th** 40 Years and under 60 Years. | **6th.** 60 Years and under 80 Years | **7th.** 80 Years and upwards |
| Small-pox | 0·34 | 0·08 | 0·11 | 0·07 | 0·06 | 0·03 | Nil. |
| Measles | 2·3 | 2·2 | 0·06 | 0·004 | Nil. | Nil. | Nil. |
| Scarlet Fever | 1·7 | 5·1 | 0·9 | 0·04 | 0·004 | 0·03 | Nil. |
| Whooping Cough | 7·2 | 2·8 | 0·09 | 0·002 | Nil. | Nil. | Nil. |
| Enteric Fever | 0·11 | 0·22 | 0·3 | 0·4 | 0·24 | 0·33 | 0·22 |
| Diarrhœa | 21·4 | 2·4 | 0·05 | 0·05 | 0·21 | 1·7 | 2·7 |
| Cancer | 0·023 | 0·025 | 0·019 | 0·2 | 1·4 | 2·5 | 2·5 |
| Scrofula | 2·2 | 1·4 | 0·4 | 0·12 | 0·1 | 0·03 | Nil. |
| Tabes Mesenterica | 8·8 | 2·4 | 0·17 | 0·03 | 0·008 | Nil. | 0·22 |
| Phthisis | 0·8 | 0·46 | 1·1 | 3·8 | 3·8 | 1·4 | 0·22 |
| Apoplexy and Paralysis | 0·045 | 0·031 | 0·030 | 0·25 | 2·1 | 10·6 | 18·6 |
| Convulsions | 31·7 | 2·3 | 0·055 | 0·03 | 0·017 | 0·013 | Nil. |
| Brain Disease, &c. | 5·9 | 2·1 | 0·4 | 0·3 | 0·77 | 2·0 | 0·9 |
| Heart Disease, &c. | 0·16 | 0·04 | 0·3 | 0·7 | 3·0 | 8·8 | 10·1 |
| Bronchitis | 21·7 | 4·8 | 0·15 | 0·21 | 1·9 | 10·2 | 19·8 |
| Pneumonia | 5·6 | 2·1 | 0·2 | 0·4 | 1·0 | 1·7 | 2·5 |
| Liver Disease, &c. | 0·18 | 0·031 | 0·011 | 0·19 | 1·0 | 1·9 | 0·9 |
| Premature Birth | 16·3 | 0·006 | Nil. | Nil. | Nil. | Nil. | Nil. |
| Teething | 4·4 | 1·2 | Nil. | Nil. | Nil. | Nil. | Nil. |
| Childbirth | Nil. | Nil. | 0·04 | 0·4 | 0·11 | Nil. | Nil. |
| Old Age | Nil. | Nil. | Nil. | Nil. | 0·1 | 12·3 | 142·7 |
| Atrophy and Debility | 43·2 | 1·3 | 0·05 | 0·033 | 0·14 | 1·26 | 2·5 |
| Fractures and Contusions | 0·09 | 0·18 | 0·17 | 0·4 | 0·66 | 1·1 | 2·5 |
| Suffocation | 4·1 | 0·025 | 0·002 | 0·004 | 0·038 | 0·065 | 0·45 |

The relative fatality of the different diseases in the foregoing Table at different age-periods has therefore been as stated below :—

*Small-pox.*—Most fatal in the 1st age-period, next in order in 3rd, 2nd, 4th, 5th, 6th (no deaths in 7th period).

*Measles and Whooping Cough.*—The 1st and 2nd periods are the most fatal, and are nearly equal in fatality ; comparatively few deaths occur in 3rd and 4th periods and none after the 4th.

*Diarrhœa.*—The 1st period is by far the most fatal ; next in order are the 7th, 2nd, and 6th periods ; fatality very small at other ages.

*Scrofula.*—Is most fatal in the 1st and 2nd periods, less so from 3rd to 6th periods ; no deaths have been registered under this head in the last period.

*Tabes Mesenterica and Convulsions.*—Each of these causes is most fatal in the 1st period (Convulsions by far the most so), and next in the 2nd ; the rates of death at subsequent periods are low ; no death is returned from Tabes in 6th, or from Convulsions in the 7th period.

*Brain Diseases, &c.**—Are relatively most fatal in the 1st, 6th, 7th, 5th, and 3rd periods.

*Bronchitis and Pneumonia.*—Most fatal in the 1st and last age-periods, next in order, in the 6th, 2nd, 5th, 4th, and 3rd periods.

*Premature Birth.*—The fatality from this cause is naturally almost confined to the 1st year of life. One death in the 2nd period is returned as being due to premature birth.

*Teething.*—Chiefly fatal during the first year of life, but frequently so (1·2 of deaths per 1,000 children living) during the age of from 1 to 5 years.

*Atrophy and Debility.*—Most fatal by far in the 1st year, next so in the 7th age-period, then in the 2nd and 6th. Comparatively few deaths from this cause have been returned in the middle periods of age.

*Suffocation.*—Chiefly fatal to young infants, from over-lying, &c., occasionally so from other causes at subsequent periods of life, extremely aged persons being, after infants, more liable to this mode of death than others.

*Scarlet Fever.*—Is the only Zymotic disease whose fatality is greatest during the 2nd age-period. Next, but considerably lower in order of fatality is the 1st period. This disease has been fatal in gradually falling degrees at all of the more advanced age-periods except the last.

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* Class III., Order 1, Sub-order 8, of the Classification of the Registrar General during the period under report.

*Enteric Fever.*—Deaths under this head have been registered at every period of life. The greatest fatality has been attained in order in the 4th, 3rd, and 6th periods ; in the 2nd and 7th periods the rates are lower and equal.

*Cancer.*—The 7th and 6th periods are highest (equal) in rate of fatality, in the 5th the fatality is considerable ; in the remaining periods it is comparatively low.

*Phthisis.*—(Pulmonary Consumption)—Fatality greatest (equal) in 4th and 5th periods, next in 3rd period ; in all other periods comparatively low.

*Apoplexy and Paralysis, Heart Diseases, and Fractures and Contusions.*—All essentially causes of death at advanced age, all relatively most fatal in 7th, 6th, 5th, and 4th age-periods. Mortality low at other ages.

*Childbirth.*—The most fatal age-periods in order of relative mortality are the 4th, the 5th, and the 3rd.

## MORTALITY IN DIFFERENT YEARS COMPARED.

Mortality in different years compared.

The number of deaths registered in Newcastle during each of the different years 1874-83 is as follows :—

| YEAR. | NUMBER OF DEATHS. | VARIATION FROM AVERAGE. | |
|---|---|---|---|
| | | EXCESS. | DEFICIENCY. |
| 1874 | 3,956 | 508 | ... |
| 1875 | 3,587 | 139 | ... |
| 1876 | 3,183 | ... | 265 |
| 1877 | 3,179 | ... | 269 |
| 1878 | 3,423 | ... | 25 |
| 1879 | 3,458 | 10 | ... |
| 1880 | 3,335 | ... | 113 |
| 1881 | 3 164 | ... | 284 |
| 1882 | 3,403 | ... | 45 |
| 1883 | 3,792 | 344 | ... |
| Total... | 34,480 | | |

Annual mean number of deaths, 3,448.

On three occasions the mean annual number of deaths has been notably exceeded, viz.:—1874, 1875, and 1883. On four occasions the death returns have been markedly below the mean, viz.:—in 1876, 1877, 1880, and 1881.

In Appendix B is given a comparative statement of the number of deaths in each of the years 1874-83 from diseases and other causes liable to fluctuation, from which the following figures are taken by way of helping to explain the increase or decrease in the general mortality during each of the seven years above referred to.

## DEATHS FROM FLUCTUATING DISEASES, &c., DURING CERTAIN YEARS COMPARED WITH AVERAGE DURING 1874–83.

Deaths from fluctuating diseases, &c., compared.

| TABLE I. | Years in which the General Mortality was *above* the average. | | |
|---|---|---|---|
| DISEASES, &c. | 1874. Number of Deaths *above* average. | 1875. Number of Deaths *above* average. | 1883. Number of Deaths *above* average. |
| *Small-pox ... ... ... ... ... ... | ... | ... | 48 |
| *Measles ... ... ... ... ... ... | ... | ... | 160 |
| Scarlet Fever ... ... ... ... ... | 124 | ... | ... |
| Whooping Cough ... ... ... ... ... | 22 | ... | ... |
| Typhus ... ... ... ... ... ... | 7 | ... | 9 |
| Enteric Fever ... ... ... ... ... | 31 | 27 | ... |
| Diarrhœa ... ... ... ... ... ... | 77 | 45 | ... |
| Convulsions ... ... ... ... ... ... | 89 | 63 | ... |
| Heart Diseases ... ... ... ... ... | 19 | 23 | ... |
| Bronchitis and Pneumonia ... ... ... | 58 | 26 | 70 |
| Kidney Diseases (including Bright's Disease) .. | ... | 7 | 24 |
| Teething ... ... ... ... ... ... | ... | ... | 19 |
| Old Age ... ... ... ... ... ... | ... | ... | ... |
| Fractures and Contusions ... ... ... ... | 46 | 11 | 8 |
| Drowning (accident) ... ... ... ... | 6 | 16 | ... |
| Suffocation ,, ... ... ... ... | ... | ... | ... |
| Suicide ... ... ... ... ... ... | 4 | ... | 5 |
| Total ... ... ... ... | 483 | 218 | 343 |
| Total variation from average number of deaths (all causes) in the ten years ... ... ... | 508 above. | 139 above. | 344 above. |

| TABLE II. | Years in which the General Mortality was *below* the average. | | | |
|---|---|---|---|---|
| DISEASES, &c. | 1876. Number of Deaths *below* average. | 1877. Number of Deaths *below* average. | 1880. Number of Deaths *below* average. | 1881. Number of Deaths *below* average. |
| *Small-pox ... ... ... ... | 12 | 12 | 13 | 3 |
| *Measles ... ... ... ... | 20 | 29 | 35 | 14 |
| Scarlet Fever ... ... ... ... | 87 | 63 | ... | 83 |
| Whooping Cough ... ... ... | 38 | ... | ... | 12 |
| Typhus... ... ... ... ... ... | ... | 6 | ... | ... |
| Enteric Fever... ... ... ... ... | 5 | 22 | 12 | 4 |
| Diarrhœa ... ... ... ... ... | 6 | 37 | ... | 8 |
| Convulsions ... ... ... ... ... | ... | 24 | 11 | 36 |
| Heart Diseases ... ... ... ... | 2 | 9 | 21 | 13 |
| Bronchitis and Pneumonia ... ... | 36 | 5 | ... | 38 |
| Kidney Diseases (including Bright's Disease ... ... ... ... | 11 | 7 | 5 | ... |
| Teething ... ... ... ... | ... | 10 | 6 | ... |
| Old Age ... ... ... ... | 34 | ... | ... | ... |
| Fractures and Contusions ... ... | ... | 16 | 10 | 14 |
| Drowning (accident) ... .. | ... | ... | 5 | 12 |
| Suffocation ,, ... ... | ... | 1 | ... | 11 |
| Suicide... ... ... ... ... | ... | 4 | ... | 1 |
| Total number below average of the ten years (same causes) ... ... | 251 | 245 | 118† | 249 |
| Total variation from average number of deaths (all causes) ... ... | 265 below. | 269 below. | 113 below. | 284 below. |

* Small-pox Deaths absent in 7 first years of decade, except *one* death each in 1876 and 1877. Measles deaths excessive only in 1883.

† The variation in this year's return depends largely on diminution of number of deaths from causes in Class I., Order 1, not counted in other years of the decade; also from other causes not ordinarily liable to fluctuation, *e.g.*, local diseases.

The foregoing returns do not profess to give more than the leading diseases, &c., contributing during certain years to the general departure from the annual average number of deaths. A full explanation of the causes of variation is only to be arrived at by comparing in detail each of the 114 causes of death in the general classification with the annual average from the same causes, and showing the increase or decrease under each head, the total difference between which should agree with the variation between the entire number of deaths for a given year and the annual average of the decenniad.

To give such a complex return here would serve no particular purpose, and would interfere with the object sought, viz., to bring the principal factors into relief.

It should be observed, however, that in many of the years in which particular diseases were prevalent, other diseases have been conspicuous by their absence. Thus, in 1874, when Scarlet Fever caused 124 deaths above the average, Small-pox was absent. Owing to the prevalence of Small-pox, in the latter part of the decade, the average yearly number of deaths from that disease is somewhat high; the return for 1874 is, therefore, 13 below the average, which number is a set-off against that of the increase from the other disease. Again, in 1883, when Measles and Small-pox were extremely fatal, Scarlet Fever and Whooping Cough were much less so than the average. The diminished mortality of the two last-named causes is, therefore, a set-off against the increase from the two former.

Hence a general excess in a given year is only partially explained by the presence of an epidemic, even though that epidemic caused as many deaths as the total excess for the year.

THE

# HOUSE-TO-HOUSE INSPECTION

OF

NEWCASTLE-UPON-TYNE.

# THE HOUSE-TO-HOUSE INSPECTION.

Time of Inspection.

A House-to-house Inspection was begun with the authority of the Sanitary Committee in 1883. At first the work was carried on by the ordinary staff of Inspectors of the Health Department. At the close of 1883 twelve additional Inspectors were engaged, most of whom continued on duty during 1884. Three of these officers were placed under the supervision of the Inspectors in charge of each of the four different Sanitary Districts, into which the City is divided. The inspection was not completed until May, 1885.

Plan.

The tenement property was first inspected; afterwards the dwellings in flats; next, the smaller self-contained houses, then the larger, and last the dwellings of highest class. The inspection of the last named was entrusted to the regular Inspectors of the Department.

Form used.

A copy of the Form used in the inspection of each dwelling is given in the Appendix.

The forms were afterwards entered in registers at the office of the Department, where they are available for future reference. The registers are likely to be especially useful in the case of tenement property of the City, which is about to be placed under registration and regulation.

Extent.

The inspection, it is believed, includes a return for every inhabited dwelling in the City, except two, admission to which was refused. Beyond these, the opposition was virtually *nil.* In one or two instances only have objections, after the inspection, been made to the examination of private premises.

In self-contained dwellings, with certain exceptions to be specified hereafter, the examination did not extend to the rooms, but the other items on the form were duly filled in. In the tenement property the condition of the rooms was noted, and measurements were taken.

Need of.

That the inspection was greatly needed is shewn by the large number of defects noted and dealt with. During the year 1884 no less than 12,565 notices (formal or informal) were served for insanitary conditions of various kinds* and in 1885 the number was also large as stated in a former part of this Report (page 29). As most of the private property owners were communicated with by letter the correspondence was necessarily large. It is satisfactory to be able to state that, with

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* See Table XVI.—Annual Report for 1884, p. 62.

Action following.

very few exceptions, the remedies advised for defects of house property were readily adopted and carried out by the owners. In case of notices not attended to, the defects were again looked up and pressed on the attention of the owners until the remedy was satisfactorily applied. A large and useful work has thus been carried out by the Department—and without having recourse in any case to magisterial proceedings for the enforcement of sanitary alterations. There is reason to believe that this (for Newcastle) new departure has been well received by householders. Altogether, the House-to-house Inspection may be regarded as highly satisfactory, and one that, although involving much labour and tact, and considerable expense, might be, every five years or so, repeated with advantage to the inhabitants.

Inspection: how received by householders.

Heads of Inquiry.

The Inquiry may be summarised under the following heads :—

HABITATIONS (tenements, houses in flats, self-contained dwellings.)
INHABITANTS.
SANITARY STATE OF DWELLINGS.
(*a*) Roofs and Spouts.
(*b*) Ventilation of property in block.
(*c*) State of dwelling rooms.
(*d*) Wastepipes.
(*e*) Conveniences (particulars as to.)
(*f*) Yards.
(*g*) Drains.
(*h*) Defective Cellars.
(*k*) Dirty Premises.
(*l*) Overcrowding.
(*m*) Water Supply.

Boundaries of Sanitary Disricts.

The City is divided, for sanitary purposes, into four districts of which *No.* 1 is bounded on the north by the middle of Elswick Road (entire length), Westgate Road, Collingwood Street, Mosley Street (to Grey Street) ; on the east, by Dean Street, The Side, Sandhill ; on the south, by the river from the Sandhill to the City boundary ; and on the west, by the City boundary to Elswick Road.

*No.* 2 includes the area between Elswick Road and the North Road and the City boundary, and comprises the greater part of the Town Moor, the Nun's Moor and the Leazes, as well as the triangular area between the middle of Westgate Road, (below the Cemetery,) and Collingwood, Mosley, Grey and Northumberland Streets.

*No.* 3 comprises the area between Dean Street, Grey Street, Northumberland Street, the North Road to the west, and the Ouseburn to the east, as far as the City boundary on the north, and the river on the south.

*No.* 4 includes all the remaining part of the City, viz., that lying to the east of No. 3 District.

## HABITATIONS.

Particulars as to Habitations.

| DISTRICTS. | TENEMENTS. | | | | | Flats or Self-contained.* | Total Households. |
|---|---|---|---|---|---|---|---|
| | Of 1 room each. | 2 rooms each. | 3 rooms each. | 4 or more rooms each | Total Tenements | | |
| No. 1 ... ... | 1,138 | 2,276 | 390 | 89 | 3,893 | 5,251 | 9.144 |
| „ 2 ... .. | 1.561 | 1,772 | 366 | 86 | 3,785 | 6,487 | 10,272 |
| „ 3 ... ... | 2.047 | 1,694 | 343 | 59 | 4,143 | 5,467 | 9.610 |
| „ 4 ... ... | 586 | 825 | 83 | 14 | 1,508 | 4,257 | 5,765 |
| Total ... | 5,332 | 6,567 | 1,182 | 248 | 13,329 | 21,462 | 34,791 |

Comparison of present return of inhabited houses with others.

This return differs considerably from that of the number of inhabited houses on the rate books of the Overseers. Thus the total inhabited houses according to the rate books to the middle of the year 1884 is 31,583, and to the middle of 1885 it is 32,795 ; in the former case being 3,208, and in the latter 1,996, below the return shown by the House Inspection Registers.

Concerning this discrepancy the following may be offered in explanation :—

1st. Although the greater part of the returns of the Health Department were collected in 1884, the inspection was not completed until far into 1885—and the list of dwellings was, as far as possible, made complete to date of closure of the inquiry. The Overseers' return of 1885 is therefore a better standard for comparison with our own than that of 1884.

2nd. The Overseers count every house whether inhabited or not, whereas the House-to-house Inspection includes only occupied dwellings.

3rd. In tenement property, when a landlord is resident and pays the rates, no matter how many families there may be in the "house," beyond the landlord's own, they are not counted on the rate books.

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* Including all dwellings with a private entrance for each family. The cellar-kitchens of George Street West, for example, are here counted as self-contained dwellings, each having a private door.

4th. Similarly other sub-let rooms and furnished lodgings are not counted.

The foregoing will probably account for the preponderance of the House Inspection return over that of the rate books of the Overseers.

There are two other sources of information respecting the inhabited houses of the City, viz. :—The census returns, and those of the City Engineer* showing the houses built each year. The former are of no service on the present occasion for the simple reason that the term "inhabited house" in the census returns and in the rate books means two different things. The census takes no note of the sub-division of a "house" into tenements, whereas on the rate books, each tenement, with the exception of sub-lettings as above stated, is termed a "house."† The return of houses built, shewing the number of families for which accommodation is provided, and therefore in so far adapted for comparison with the returns on the rate books, is given below.

RETURN OF NEW HOUSES BUILT. NUMBER OF FAMILIES FOR WHICH ACCOMMODATION WAS PROVIDED.

| | 1881. | 1882. | 1883. | 1884. | TOTAL. |
|---|---|---|---|---|---|
| St. Nicholas' ... ... | ... | ... | ... | ... | ... |
| St. John's ... ... | ... | ... | ... | ... | ... |
| All Saints' ... ... | 1 | 1 | ... | 16 | 18 |
| St. Andrews ... ... | 11 | 8 | 20 | 55 | 94 |
| Westgate ... ... | 110 | 117 | 52 | 96 | 375 |
| Elswick ... ... ... | 40 | 61 | 272 | 278 | 651 |
| Jesmond ... ... ... | 42 | 54 | 35 | 21 | 152 |
| Byker ... ... ... | 175 | 150 | 248 | 207 | 780 |
| Heaton ... ... ... | 110 | 92 | 101 | 169 | 472 |
| | 489 | 483 | 728 | 842 | 2,542 |

The total new accommodation provided in the four years is for 2,542 families. The rate books show from the middle of 1881 to the middle of 1884 a total increase of 2,303 "inhabited houses."

* Published each year in the Report of the Medical Officer of Health.

† Thus in the census of 1881 the total return of houses inhabited, uninhabited, and building is 22,094, whereas that of the rate books is 29,280, a difference of 7,186.

## INHABITANTS.

Inhabitants enumerated.

The number of inhabitants enumerated at the inspection is given below :—

Ordinary residents—adults nd c ildren.

| District. | Families. | | Lodgers. | | Totals. |
|---|---|---|---|---|---|
| | Under 12. | Over 12. | Under 12. | Over 12. | |
| No. 1 ... | 13,172 | 24,978 | 29 | 2,157 | 40,336 |
| ,, 2 ... | 13,248 | 25.402 | 208 | 2,183 | 41,041 |
| ,, 3 ... | 12,383 | 23,245 | 17 | 2,246 | 37,891 |
| ,, 4 ... | 9,880 | 15,999 | 32 | 684 | 26,595 |
| Totals ... | 48,683 | 89,624 | 286 | 7,270 | 145,863 |

ther persons:

The above gives only the ordinary residents of dwelling houses, or inhabitants proper. A large number of persons helping to make up the entire "population" of the City, and who would be included in an ordinary census, are not counted here. These comprise the following, the actual numbers of some of which on a given date are stated :—

| | Ascertained number on a given date. |
|---|---|
| Temporary Guests in private houses ... ... | ? |
| Hotel Visitors ... ... ... ... ... | ? |
| Boarding School Pupils ... ... ... ... | ? |
| The Military Barracks ... ... ... ... | 1,300* |
| The Prison ... ... ... ... ... ... | 346* |
| The Infirmary ... ... ... ... ... | 300* |
| The Workhouse ... ... ... ... ... | 645* |
| Common Lodging Houses (Lodgers) ... ... | 1,048* |
| Total ascertained ... ... ... | 3,639 |

There is no means of estimating the undoubtedly large number of persons included in the first two items on the above list.

So far as has been ascertained, there is no reason to suppose that the entire population of the City is not, at all events, fully as great as it is estimated by the Registrar General, viz. :—155,117 to the middle of the present year. Judging by the number of inhabited houses on the rate books, coupled with the explanation already given, that these books do not contain a return of the families occupying sub-tenancies and furnished apartments, there is indeed good ground for concluding that the population, as computed by the Registrar General, is an under-estimate, as, from his published returns, he himself appears inclined to believe.*

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* For the respective figures the writer is indebted to the courtesy of Col. Collingwood, Commanding Officer of the Regimental District ; to Lieutenant Wookey, Governor of the Prison ; to Mr R. R. Redmayne, House Governor of the Newcastle Infirmary ; to Mr Howitt, Master of the Workhouse ; and to Inspector White.

## DIFFERENT CLASSES OF DWELLING, AVERAGE HOUSEHOLDS, ADULTS AND CHILDREN.

Dwellings of different Classes and their occupants.

Subjoined is a statement of the number of persons living in tenement dwellings of different kinds and in private houses, children being distinguished from other persons.

| HOUSEHOLDS. | Under 12 Years of age. | Over 12 Years of age. | Totals. | Average number of Persons in each Household. |
|---|---|---|---|---|
| Tenements of | | | | |
| 1 Room each ... | 5,658 | 10,875 | 16,533 | 3·1 |
| ,, 2 Rooms ,, ... | 11,088 | 17,093 | 28,181 | 4·3 |
| ,, 3 ,, ,, ... | 2,153 | 3,767 | 5,920 | 5·0 |
| ,, 4 ,, (or more) | 417 | 985 | 1,402 | 5·7 |
| Self-contained (including flats and all dwellings with private entrance) | 29,653 | 64,174 | 93,827 | 4·4 |
| Total ... | 48,969 | 96,894 | 145,863 | 4·2 |

The average number per household in all classes is less than might have been anticipated. This is principally remarkable in the self-contained dwelling, where the average family is very little larger than in pair-room tenement, and less than those in tenements of three or four rooms each.

The census returns for 1881 yield an average population per "house" of 7·2. This, for reasons already stated, should not be put in comparison with the above.

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* "The population of the 28 towns is estimated on the hypothesis that the rate of increase in the last intercensal period has been maintained since 1881. There are, however, reasons to believe that by this method the populations of Nottingham, Newcastle-upon-Tyne, and Cardiff are under-estimated. If the populations be estimated by the increase of inhabited houses on the rate books, the Death-rates * * * of Newcastle * * are over-stated by about one-twelfth."—*Extract from weekly returns of the Register General for 1886.*

The total population under twelve years of age is about half that of those aged 12 and upwards. This proportion is not uniformly maintained in the different classes of dwellings, and actually occurs in single room tenements only. In self-contained dwellings and the larger tenements, children under twelve years old do not form one-third of the household; in tenements of two and three rooms each they form more than one-third of it.

Advantage of more frequent Census.

It is important, not only as a means of estimating the death-rate with some degree of fairness, but for general purposes, that there should be a more frequent census of the population. This suggestion does not imply the elaborate arrangements necessary for the decennial enumeration. A municipal census, taken in simple fashion and probably at less expense, say every 3 or 5 years, such as has often been proposed before, would be useful as a means of correcting estimates of population between decennial enumerations.

## SANITARY CONDITION OF DWELLINGS.*

Sanitary state of Dwellings.

Roofs and Spouts.

(*a*) *Roofs and Spouts.*—In 1,123 tenement dwellings or about 8½ per cent. of the whole, the roofs, and in 753, the spouts, were found defective; in the self-contained dwellings there were 633 defective roofs and 470 defective spouts.

Ventilation of Dwellings in block.

(*b*) *Ventilation of Dwellings in block.*—In 3,583 tenement dwellings, and 1,477 other dwellings, the general ventilation was defective.

State of Interiors.

(*c*) *State of Dwelling-rooms* (interiors).—The defects noted in this respect were as follows :—

| HOUSEHOLDS. | Number of Rooms. | | | |
|---|---|---|---|---|
| | Dark. | Damp. | Dilapidated. | Low Ceilings. (8 feet and less from the floor.) |
| Tenement ... ... | 303 | 902 | 288 | 3,326 |
| Self-contained ... ... | 166 | 873 | 98 | 773 |

"Well-rooms."

" *Well-rooms.*"—By this term is meant rooms without fireplace and with door and window close to one corner of the apartment, so that when both are open the fresh air passes in by one and out by the other, leaving stagnant the atmosphere of three-quarters of the room.

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* The term "self-contained" as previously stated, includes a considerable number of dwellings of one or two rooms only, among which, the majority of the defects mentioned occur.

The rooms in question are perhaps most common in pair-room tenements, and open into the general day and sleeping room. They are frequently small, and for the most part long and narrow. Those in George Street, for instance, are about 15 feet long and from about 8½ to 6½ feet wide.

"Well-rooms" on the first floors are generally placed end to end and meet over ground-floor passage and staircase, so that an opening for ventilation in the division wall is not practicable, as it would cause a communication between two separate tenements.

Objectionable.

The "well-room" is the most objectionable form of apartment in Newcastle.

The following is the return of "well-rooms" in the City :—

| | | | |
|---|---|---|---|
| No. | 1 | District | 2,023* |
| ,, | 2 | ,, | 812 |
| ,, | 3 | ,, | 212 |
| ,, | 4 | ,, | 759 |
| | | Total | 3,806 |

(In 1,853 tenements and 1,953 self-contained dwellings).

Illustrations of "well-rooms" were given in the Annual Reports for 1878 (Buckingham Street), and 1884 (George Street West.)

Wastepipes.

*(d.) Wastepipes.*— Wastepipes of different kinds were found in connexion with drains as follows :—

NUMBER OF WASTEPIPES CONNECTED WITH DRAIN.

| HOUSEHOLDS. | From Sinks and Stackpipes. | From Baths. | From Lavatories. | From Cisterns. |
|---|---|---|---|---|
| Tenement ... ... ... | 499 | 7 | 13 | 29 |
| Self-contained ... ... ... | 3,363 | 872 | 1,007 | 816 |
| Total ... ... ... | 3,862 | 879 | 1,020 | 845 |

Conveniences.

(*e*) *Conveniences.*—The subjoined return shews the numbers of the different kinds of convenience in each sanitary district, together with the number of tenants (actual and proportional) using each kind.

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* Of these 554 occur in Scotswood Road alone.

## SUMMARY OF CONVENIENCES.

| DISTRICT. | WATER CLOSETS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TENEMENTS. | | | | | | SELF-CONTAINED DWELLINGS. | | | | | |
| | In-door W.C's. | | | Out-door W.C's. | | | In-door W.C's. | | | Out-door W.C's. | | |
| | Tenants. | W.C's. | Tenants to a W.C. | Tenants. | W.C's. | Tenants to a W.C. | Tenants. | W.C's. | Tenants to a W.C. | Tenants¶ | W.C's.* | Tenants to a W.C. |
| No. 1 ... | 265 | 86 | 3·1 | 1978 | 685 | 2·9 | 1035 | 1092 | ·95 | 3382 | 2804 | 1·2 |
| No. 2 ... | 408 | 174 | 2·3 | 1237 | 324 | 3·8 | 1562 | 1430 | 1·09 | 3330 | 3152 | 1·1 |
| No. 3 ... | 698 | 237 | 2·9 | 1645 | 439 | 3·7 | 2170 | 2089 | 1·04 | 1755 | 2138 | ·8 |
| No. 4 ... | 16 | 4 | 4·0 | 59 | 22 | 2·7 | 118 | 188 | ·63 | 301 | 319 | ·9 |
| Totals... | 1387 | 501 | Average 2·8 | 4919 | 1470 | Average 3·4 | 4885 | 4799 | Average 1·02 | 8768 | 8413 | Av'rage 1·04 |

| DISTRICT. | PRIVIES. | | | | | | ASH-CLOSETS. | | | | | | WITHOUT CONVENIENCES. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TENEMENTS. | | | SELF-CONTAINED DWELLINGS. | | | TENEMENTS. | | | SELF-CONTAINED DWELLINGS. | | | TENEMENTS. | SELF-CONTAINED DWELLINGS. |
| | Tenants. | Privies. | Tenants to a Privy. | Tenants.¶ | Privies.* | Tenants to a Privy. | Tenants. | Ash-closets | Tenants to Ash-closet. | Tenants.¶ | Ash-closets.* | Tenants to Ash-closet. | | |
| No. 1 ... | 1446 | 426 | 3·4 | 700 | 558 | 1·3 | 168 | 46 | 3·7 | 114 | 75 | 1·5 | 36 | 20 |
| No. 2 ... | 1163 | 294 | 4·0 | 983 | 850 | 1·2 | 973 | 318 | 3·1 | 436 | 343 | 1·3 | 4 | 176 |
| No. 3 ... | 1025 | 264 | 3·9 | 961 | 878 | 1·1 | 721 | 248 | 2·9 | 470 | 406 | 1·2 | 54 | 111 |
| No. 4 ... | 1161 | 357 | 3·2 | 3555 | 2779 | 1·3 | 209 | 77 | 2·7 | 235 | 169 | 1·4 | 63 | 48 |
| Totals... | 4795 | 1341 | Avge. 3·6 | 6199 | 5065 | Avge. 1·2 | 2071 | 689 | Avge. 3·0 | 1255 | 993 | Avge. 1·3 | 157† | 355‡ |

Water-closets.

*Water-closets.*—It will be observed that the average number of tenants to an *in-door* water-closet in tenement property is 2·8, ranging from 2·3 tenants to each in No. 2 district to 4 tenants to each in No. 4.

* Many of these belong to houses having also in-door water-closets. In such cases the tenants are not included in the numbers under the headings marked thus ¶.

† These chiefly comprise dwellings, the occupants of which were found to be using public conveniences.

‡ These chiefly comprise house property, having on the ground floor lock-up shops, the latter only being without convenience.

The average number of tenants to each *out-door* closet in the same class of property is 3·4, ranging from 2·7 in No. 4 district to 3·8 in No. 2.

The return showing proportion of water-closets to self-contained dwellings does not appear to call for special comment beyond the observation that in dwellings in flats and other small houses with private entrance, the closet is frequently common to two separate households.

Privies and Ash-closets.

*Privies and Ash-closets.*—The rates of tenants to "conveniences," for the disposal of excrement by "dry" methods in operation in the tenement property of Newcastle, are fairly low; privies averaging one to every 3·6 tenants, and ash-closets one to every three tenants.

The number of cases without "conveniences" is partly explained by the footnote.

Altogether the proportion of conveniences to tenants in tenemented property is fairly satisfactory.

| No. of Tenants with | | | |
|---|---|---|---|
| Households. | Convenience within 12 feet of Door or Window of House. | | Defective Convenience. |
| | Privies. | Ash-Closets. | |
| Tenement ... ... ... | 575 | 465 | 381 |
| Self-contained ... ... ... | 1,710 | 671 | 642 |
| Total ... ... ... ... | 2,285 | 1,136 | 1,023 |

272 ashpits in tenement property and 438 in other property were found defective.

233 soil-pipes in tenement property and 1,780 in other property were found unventilated.

(*f*) *Yards.*—The defects noticed with respect to these were:—

| Households. | Number of Tenants with | | | | |
|---|---|---|---|---|---|
| | Small Yards. | Brick-paved Yards. | Yards otherwise Defective. | Animals kept in Yard. | No Yard. |
| Tenement ... ... | 397 | 649 | 1,994 | 356 | 1,128 |
| Self-contained ... ... | 155 | 505 | 1,290 | 985 | 2,055 |
| Total ... ... ... | 552 | 1,154 | 3,284 | 1,341 | 3,183 |

**Drains and Traps**

(*g*) *Drains.*—The inlets to house drains were found to be trapped or or otherwise, as the case might be, as stated below. It will be observed that the total number of traps, &c., is less than the total number of households. This arises from the fact that tenemented houses and self-contained dwellings in flats commonly have only one sink for two or more tenants.

| Households. | Drain Traps. | | | | | | Total. |
|---|---|---|---|---|---|---|---|
| | Gulley. (Syphon.) | "Bell." | "D." | "Buchans" | Others. | None. | |
| Tenement ... | 2,255 | 233 | 67 | ... | 1,633 | 166 | 4,354 |
| Self-contained ... | 9,739 | 1,320 | 477 | 18 | 5,580 | 616 | 17,750 |
| Total ... ... | 11,994 | 1,553 | 544 | 18 | 7,213 | 782 | 22,104 |

Defective drains were noted on tenement property in 82 instances, and in self-contained house premises in 257 cases.

(*h*) *Defective Cellars.*—10 cellars in connexion with tenement property, and 16 in connexion with self-contained dwellings were found defective.

**Dirty Premises.**

(*k*) *Specially Dirty Premises* were noted in 483 instances on tenement property, and in 95 instances on self-contained house property.

**Overcrowding.**

(*l*) *Overcrowding.*—As previously stated, the rooms of all tenement and the smaller class of self-contained dwellings, were measured. The measurements were calculated, and wherever the amount of cubic space per person was less than 300 cubic feet the case is considered one of overcrowding. Of such cases there were 362 in tenement and 66 in other property—a remarkably small number considering the greatly increased poverty of the working class of late years.

In consequence of the circumstances of the overcrowded, many of whom were without means of subsistence, and had for some time, been allowed by their landlords to live rent free, it was felt that if they were turned out of their dwellings, wretched though many of them are, they would have nowhere to go, and the cure would be worse than the disease. The decision to leave them alone for the present was not come to without serious consideration of the possible consequences in the form of an outbreak of Typhus ; but once formed, it has been rigidly adhered to. The result has been in the highest degree satisfactory, for notwithstanding the unparalleled " distress " and seasonal severity of the winter just past, there has been no Typhus in the City.

(*m*) *Water Supply.*—The returns relating to Water Supply and the different domestic appliances for its use will be found in the following separate division of the Report.

# THE WATER SUPPLY OF NEWCASTLE-UPON-TYNE.

# DISTRIBUTION,

## FROM A HYGIENIC POINT OF VIEW.

# THE WATER SUPPLY OF NEWCASTLE-ON-TYNE.

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## DISTRIBUTION.—From a Hygienic Point on View.

Previous Reports (1884) on Water-Supply.

In October, 1884, Reports were submitted by the City Engineer and Medical Officer of Health in which each officer treated from his own standpoint the questions of collection, storage, and conveyance of the water supplied to Newcastle. The resolution of the Council, in compliance with which these Reports were prepared, included another important item not dealt with at the time, owing to the unavoidable delay in the issue of the Reports which must necessarily ensue before the requisite information could be collected.

The item referred to is that of *Distribution*. The resolution in question having been passed "with the view of securing an ample supply of pure and wholesome water for domestic use," the different circumstances affecting either the quantity or the quality of the supply from the time of its arrival in the City till its consumption by the householder, remain to be considered.

Distribution—public & private.

The subject consists of two distinct parts,—one referring to the street mains and the water so long as it continues the property of the Company; the other to the pipes and apparatus on private premises, and their contained water from its delivery until its use or misuse (as the case may be) by the receiver. The former of these divisions is naturally one of engineering, the latter is purely one of practical sanitation, and will alone be treated of here.

Most of the statistical details in the following pages were collected at the House-to-house Inspection already reported on.

Object and scope of the present inquiry.

To deal properly with the question at issue in the terms prescribed by the before-named resolution, *i.e.*, "with the view of securing an ample supply of pure and wholesome water for domestic use," it is necessary to consider the different uses other than "domestic" to which the Company's water is put, and the extent to which these affect the supply available for household purposes; the variations of household consumption in different classes of dwellings, and their principal causes; the appliances necessary or desirable to provide the private consumer with a supply sufficient and suitable for his various wants; the ways in which, and the extent to which, water is, or should be, employed by families and individuals; the causes of waste, insufficiency of supply, and contamination of water after its delivery by the Company; health in relation to private details connected with water, and water apparatus; the different legal provisions in force or necessary for the purpose of "securing an ample supply of pure and wholesome water for domestic use."

The subject may, therefore, be discussed under the following heads:—

1.—Consumers and consumption.
2.—Use and misuse.
3.—Requisites of domestic distribution.
4.—Defects on private premises conducing to pollution, waste, insufficiency, accident, etc.
5.—Hygiene in relation to domestic water-service.
6.—Law.

## 1.—Consumers and Consumption.

**Purposes for which our water is used**

The water of the City is used for three general purposes, viz., domestic, public, and trade. The first concerns matters of diet, cleanliness, and refuse-removal (by sinks and water-closets in private and tenemented houses, hotels, lodging-houses, institutions, etc.), and is entirely sanitary; the second relates to street-watering, sewer-flushing, fire-extinction, fountains, public baths and wash-houses, etc., and is principally sanitary; the third has to do with, among other things, the preparation of different manufactured foods and drinks, the cleansing of animals in domestication, etc., and is, therefore, also, to a large extent, sanitary in character.

**Use of water filtered unnecessarily.**

In speaking of "water for trade purposes," the necessity for good and wholesome water in many manufacturing processes, and the use of filtered water in many others where unfiltered would do equally well, are apt to escape notice. Probably a great deal more water for such purposes is taken from the filtered supply than is generally recognised; perhaps even more than is drawn from the river and delivered by the special "trade mains," for these mains extend only to works in the neighbourhood of the river—the factories, etc., in the higher part of the town and district supplied by the Company using filtered water for their purposes, whether its wholesomeness is a quality important to their manufacture or not. As this has a direct bearing on the amount of potable water available for domestic use, it is well to inquire to what extent this consumption of filtered water for other than household purposes goes on.

Water for Public purposes is Filtered.

The following is a list of the *trades and trade-processes* consuming filtered water, some of which require potable water and others do not. The number of persons following the respective occupations at last census is also given. This, though not intended as a return of the actual number of the business premises under each head, is yet in some degree a criterion of the extent of the different industries in Newcastle :—

RETURN* OF THE PRINCIPAL TRADES AND OCCUPATIONS IN WHICH WATER IS USED, WITH NUMBER OF PERSONS FOLLOWING EACH.

CLASS I.—TRADES, &C., IN WHICH WATER USED *should be potable.*

Trades requiring potable water.

| Trades, &c. | No. of persons following. |
|---|---|
| Chemist and Druggist | 170 |
| Hotelkeeper, Innkeeper, Publican | 402 |
| Coffee or Eating-Housekeeper | 78 |
| Lodging-Housekeeper | 397 |
| Malster, Brewer | 126 |
| Milkseller, Dairyman | 235 |
| Provision-Curer, Dealer | 439 |
| Fishmonger | 106 |
| Baker | 216 |
| Confectioner, Pastrycook | 238 |
| Greengrocer, Fruiterer | 242 |
| Aerated Water Manufacturer | 52 |
| Grocer | 875 |
| Total | 3,576 |

There were, in 1885, 156 registered Cowkeepers, occupying 191 Cowhouses in Newcastle. In addition to these there were 149 persons registered as Purveyors of Milk. There are now 69 Bakehouses and 12 Triperies in the City.

CLASS II.—TRADES, &C., IN WHICH THE WATER USED *need not be potable, but is drawn from the domestic supply.*

Trades using water which is filtered unnecessarily.

| Trades, &c. | No. of persons following. |
|---|---|
| Photographer | 72 |
| Washing and Bathing Service (not domestic) | 527 |
| Public Conveyance and Livery Stablekeeper, Service of | 1,498 |
| Nurseryman, Seedsman, Florist, Gardener (not domestic) | 67 |
| Engaged about animals (not being servants) | 342 |
| Printer, Lithographer | 623 |
| Working in Machines | 3,538 |

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* Prepared from the Census Tables of 1881.

CLASS II.—*Continued.*

| Trades, &c. | No. of persons following. |
|---|---|
| Cutler, Implement Maker, &c. | 61 |
| Maker of Arms, Ordnance | 71 |
| Builder | 182 |
| Manufacturing Chemist, Alkali Manufacturer | 103 |
| Drysalter | 10 |
| Butcher, &c.* | 632 |
| Poulterer, &c. | 35 |
| Dyer, &c. | 38 |
| Hairdresser | 144 |
| Maker of Soap, Glue, Gelatine, &c. | 25 |
| Tanner, Fellmonger, Currier | 355 |
| Gas-Works Service | 92 |
| Smiths | 1,040 |
| Stone Cutter, &c. | 24 |
| Brichmaker, &c. | 139 |
| Earthenwaremaker, &c. | 543 |
| Total | 10,161 |

**Trades using water for steam power.**

CLASS III.—TRADES, &C., IN WHICH WATER IS USED FOR STEAM POWER.

| Trades, &c. | No. of persons following. |
|---|---|
| Bookbinder, Printer, Lithographer, &c. | 805 |
| Maker of Machinery | 3,532 |
| Maker of Tools, Implements, and Apparatus | 76 |
| Maker of Arms and Ordnance | 70 |
| Builder, Cabinetmaker, Upholsterer | 860 |
| Carriage-maker | 240 |
| Shipbuilder, Wright, and Carpenter | 732 |
| Manufacturer of Chemicals, Alkali | 103 |
| Tobacco Manufacturer | 298 |
| Maltster, Brewer | 126 |
| Corn Miller | 99 |
| Sugar Refiner | 2 |
| Aerated Water Manufacturer | 52 |
| Maker and Preparer of Textile Fabrics (wool, cotton, hemp, &c.) | 183 |
| Maker of Articles of Dress | 88 |
| Worker in Animal Substances (Tallow, Grease, Soap, Glue, &c.) | 131 |
| Worker in India Rubber work | 8 |
| Worker in Wood (Timber Merchant, Sawyer, Lath-maker, Turner, &c.) | 342 |
| Miner | 471 |
| Gas-Works Service | 92 |
| Manufacturer of Brick, Tile, Earthenware | 682 |
| Manufacturer of Iron and Steel | 1,762 |
| Manufacturer of Lead, Brass, and Wire | 593 |
| Maker of Bolts, Nuts, Rivets, Screws, Staples | 13 |
| Total | 11,360 |

Locomotive Engine Men are not included in the foregoing.

The works supplied with Tyne Water are unavoidably included in the above list. Some of the above trades may be carried on outside of Newcastle by residents within the City.

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* There are 133 licensed Slaughter houses in the City.

The above will give some idea of the extent to which filtration of water by the Company is carried on for the supply of other than domestic consumers. In the case of the large number of tradesmen under Classes II. and III., such filtration is unnecessary for the respective manufacturers.

Probable effect of large use of filtered water on the character of the filtration.

The objection to laying separate pipes, for filtered and unfiltered water, to each of the different places of business is expense. One objection to the present "single system" is, that the large demand for trade water is apt to lead to the supply of the imperfectly filtered liquid for dietic use. An example of this was given in the Report on the Water Supply, issued in 1884, which shewed the analyses of two samples of water drawn on the same day, one immediately *before entering*, and the other immediately *after leaving*, the filter-beds at Throckley, the unfiltered specimen being actually purer than the other.*

## DEFECTIVE SUPPLIES OF WATER TO DWELLINGS.

Among these may be mentioned the following:—

1. Out-door supply only.
2. Insufficiency of taps.
3. Distance of taps from dwellings.
4. Absence of Company's water.
5. Diet water drawn from closet-cisterns or otherwise, not direct from the main pipes.

The four first are mere variations of one widespread general defect, which is the great impediment to the free use of water for purposes of cleanliness. The fifth is a cause of the spread of disease. The three first are very prevalent in Newcastle, as is evident by the following summary account of the more glaring cases:—

Dwellings with specially defective water supplies.

*Specially Defective Water Supplies.*—401 separate blocks of house property (chiefly tenement) were returned at the House-to-house Inspection as being specially defective in regard to water supply, including 4,256 different dwellings, occupied by about 20,000 persons. For this large population there were only 345 water taps provided, or an average of 12 tenants to each tap.

The 401 blocks in question range in extent from single dwellings to groups of 37 and 32 tenements each. In 10 instances only of these was there found to be more than one tap to any single group of dwellings, however numerous.

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* Report on the Water Supply of Newcastle-upon-Tyne and District, by the City Engineer, and Medical Officer of Health, p. 59.

A selection of 50 of the worst cases, taken from the four sanitary districts of the City, is given below—

| Reference No. | General Locality in which the Cases occur. | No. of Tenants to a Tap. | Inhabitants to a Tap. | Distance of Tap from one or more of the Housholds using it. |
|---|---|---|---|---|
| | No. 1 DISTRICT— | | | |
| 11 | Mitford street ... ... | 5 | 32 | e.g. 50 to 55 yards. |
| 24 | Forth banks ... ... | 37 | 167 | e.g. 20 „ 33 „ |
| 28 | Hanover terrace ... | 25 | 93 | e.g. 16 „ 38 „ |
| 29 | Close ... ... ... | 20 | 88 | |
| 48 | Queen's lane ... ... | 32 | 125 | e.g. 40 „ 53 „ |
| 53 | Castle square ... ... | 19 | 64 | e.g. 18 „ 26 „ |
| 55 | St. Nicholas' street ... | 14 | 32 | e.g. 27 yards. |
| 73 | Skinners' burn road ... | 4 | 23 | e.g. 78 „ |
| | Total ... | 156 | 624 | |
| | Average ... | 19·5 | 78 | |
| | No. 2. DISTRICT— | | | |
| 79 | Seaham street ... ... | 23 | 114 | |
| 99 | Stowell street ... | 26 | 109 | |
| 104 | Northumberland street | 26 | 92* | |
| „ | „ ... | 27 | 92* | |
| 112 | Prudhoe place ... ... | 21 | 82 | |
| 116 | Friars ... ... ... | 16 | 76 | e.g. 44 to 59 yards. |
| 118 | Monk square ... ... | 26 | 74 | e.g. 19 „ 23 „ |
| 119 | Lambton place ... ... | 23 | 83 | e.g. 17 „ 20 „ |
| 121 | Park place ... ... | 19 | 85 | |
| 124 | Prudhoe street ... ... | 17 | 80 | e.g. 10 „ 14 „ |
| 125 | Park place ... ... | 24 | 100 | e.g. 17 „ 20 „ |
| 134 | Gallowgate ... ... | 25 | 90 | e.g. 15 „ 26 „ |
| 150 | Leazes lane ... ... | 20 | 52 | |
| 158 | Back lane ... ... | 21 | 91 | e.g. 18 „ 35 „ |
| 160 | Bulmer street ... ... | 25 | 70 | e.g. 29 yards. |
| 162 | Percy street ... ... | 30 | 109 | e.g. 18 to 26 yards. |
| 163 | „ ... ... | 17 | 52 | e.g. 31 „ 40 „ |
| 180 | Spital Tongues ... ... | 22 | 102 | e.g. 20 „ 40 „ † |
| „ | „ ... ... | 22 | 102 | „ „ „ † |
| 192 | Westgate road ... ... | 1 | 2 | e.g. 135 yards. |
| | Total ... | 431 | 1,657 | |
| | Average ... | 21·6 | 82·9 | |
| | No. 3 DISTRICT— | | | |
| 227 | City road ... ... | 22 | 75 | |
| 257 | Pandon ... ... ... | 23 | 92 | |
| 263 | City road ... ... | 26 | 83 | |
| „ | „ ... ... | 27 | 84 | |
| 276 | Sandgate ... ... | 23 | 61 | |
| 296 | Pilgrim street ... ... | 20 | 66 | |
| 326 | City road ... ... | 37 | 40 | |
| | Total ... | 178 | 501 | |
| | Average ... | 25·4 | 71·6 | |

* These form one block of dwellings supplied by two taps.

† The same block, each part having a tap.

| Reference No. | General Locality in which the Cases occur. | No. of Tenants to a Tap. | Inhabitants to a Tap. | Distance of Tap from one or more of the Households using it. |
|---|---|---|---|---|
| | No. 4 DISTRICT— | | | |
| 335 | St. Peter's ... ... | 2 | 10 | e.g. 12 and 50 yards. |
| 348 | Quality row ... ... | 29 | 127 | |
| 371 | St. Anthony's ... ... | 5 | 19 | e.g. 30 to 155 „ |
| 372 | „ ... ... | 2 | 9 | e.g. 165 and 190 „ |
| 373 | „ ... ... | 5 | 18 | e.g. 9 „ 55 „ |
| 376 | „ ... ... | 9 | 51 | e.g. 30 to 120 „ |
| 380 | Albion row ... ... | 23 | 105 | |
| 387 | St. Anthony's ... ... | 8 | 36 | e.g. 13 and 23 „ |
| 388 | St. Peter's ... ... | 7 | 39 | e.g. 80 to 150 „ |
| 406 | Shields road ... ... | 13 | 52 | e.g. 30 „ 80 „ ‡ |
| „ | „ ... ... | 13 | 52 | „ „ „ ‡ |
| „ | „ ... ... | 14 | 52 | „ „ „ ‡ |
| „ | „ ... ... | 14 | 52 | „ „ „ ‡ |
| 407 | Byker village ... ... | 12 | 42 | e.g. 52 to 81 „ |
| 410 | Byker square ... ... | 23 | 83 | |
| | Total ... | 179 | 747 | |
| | Average ... | 11·9 | 49·8 | |

Average of 18 dwellings supplied by each tap.

This "select list" of 50 cases includes 944 dwellings (almost all tenemented), inhabited by 3,539 persons. The average is upwards of 18 *dwellings and* 70 *persons supplied by each tap.*

The fifth column of the Table shows how great a distance some of the poor have to carry the water, somewhat ironically said to be "supplied" to them. The following instances may be singled out:—

Water taps at a great distance from dwellings.

| Distance of Tap from House. | Groups of Dwellings. |
|---|---|
| From 50 to 100 yards ... ... ... ... | 10 |
| „ 100 „ 150 „ ... ... ... ... | 3 |
| „ 150 „ 200 „ ... ... ... ... | 2 |

These eloquent figures may safely be left to tell their own tale of dirt!

In 68 instances included in the larger return of "specially defective supplies," houses or blocks of dwellings were without any supply of their own, there being either no tap, or the water being cut off. In a few of these well-water was used, and its use is still continued. In the others, either a proper water supply was provided on notice from the Health Department, or the rooms were closed.

## EXTRAVAGANCE OF CARRYING WATER BY HAND.

Enormous expense of hand-carried water.

The importance of the economic distribution of water, and the waste of labour caused by bad modes of distribution in tenemented dwellings, was well shown in 1850, in the Report of the General Board of Health on the Supply of Water to the Metropolis.

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‡ The same block, each part having a separate tap.

Labour prevents use.

That labour required to carry by hand the water necessary for domestic and sanitary purposes prevents its use may be accepted as a fundamental axiom of hygiene.

In a Report presented to the Sanitary Authority in 1884,* the writer shewed the very great hindrance to the use of water in tenement property by estimating the money value of the labour of the housewife of each tenement, if she carried by hand the requisite quantity of water, clean and dirty, for her family, and were paid by the pailful for the work, which amounted to a very large sum for the block of property then reported on. The principle on which the estimate was based was as follows :—

The daily supply to Newcastle averages about 30 gallons per head. One-third of this,† or four pailsful carried by hand from the yard taps to the different floors, and brought back dirty to the yard sinks, would represent to the tenement housewife eight journeys a day. If the carriage of each pailful, clean or dirty, were to pay for in money, it would perhaps cost on an average not less than a halfpenny, or 4d. per head per day, or £6 1s. 8d. per head per annum.

In the 401 blocks of dwellings with "specially defective water supplies," with their population of 20,000, this would mean above £120,000 per annum, and for the entire tenement property of Newcastle, considerably above a quarter of a million a year! This will give some idea of the impediment to sanitation in the dwelling of the working man.

It may be argued that hand-carriage of water is not paid for, as the time of a workman's wife is her own. But so is her labour, which she cannot be expected to expend in carrying water, dirty and clean, at the rate, in a family of five persons, of forty pailsful a day.

Water may be laid on to each flat by pipe for a fraction of present annualvalue of labour necessary to carry proper amount by hand.

*Cost of Plumbing.*—The cost of fitting water-pipes and self-closing taps to each flat of a tenemented house of three storys, including 30 feet of pipe in the yard, and protecting case in interior of building—all materials of good quality—would be under £6, and for putting in good sinks and waste pipes, etc., about £5 10s. more.‡

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* On the Sanitary Condition of George Street West. A copy appears as an Appendix to the Annual Report for 1884.

† In the Convict Prison at Portsmouth the amount is 11 gallons per head per day.—*Parkes.*

‡ For this information the writer is indebted to Messrs. Dinning and Cooke, Hot Water Engineers, etc.

On this basis, the tenement property before-mentioned as having "specially defective water supply," might be properly furnished with appliances for the service of water and removal of slops, for a little over £16,000, *not one seventh of the estimated yearly cost of the water that, under present arrangements, ought to be, but is not, carried by hand.*

## 2.—Use and Misuse of Water.

Importance of promoting proper use and preventing waste of Water.

The promotion in every possible way of the free employment of water for purposes of health is one of the most important duties devolving on a Sanitary Authority. In fulfilling this duty the suppression of whatever tends to interfere with or to limit the use of this great hygienic agency cannot be omitted from consideration. The prevention of abuse and waste of water might be thought to be sufficiently safely left to those who supply it ; but this is not so The Company are, it is true, interested in increasing the use and checking the misuse of water, but their object is very different from that which actuates the Corporation. The right to use their commodity being acquired by a consumer, it does not much concern the Company whether he avail himself of his privilege or not. They may not even consider it worth their while to inquire closely into waste so long as this does not prevent them meeting their ordinary demands. Their proprietorship of the article, they supply differs from that of the ordinary traders in other articles of consumption, holding, as they do, a monopoly over a necessary of life, the loss of which is felt more by their customers than themselves. In allowing any large waste of water, such as will ultimately tell on the daily supply, a company is depriving its customers of their rights by an act for which they may get undeserved public credit, since it has the effect of swelling the apparent, whilst it is diminishing the real daily average amount consumed by each person in their district. With every increase of the area or population supplied from the same watershed, the amount of water available for each individual of the population diminishes in the same ratio. Thus increased consumption tends to limit the supply to original consumers.

For these reasons the responsibility of dealing with such matters should not be left entirely to the Company.

Sanitary uses of Water.

In treating of the question of "Use and Misuse," it is desirable to have a clear understanding as to what is here implied by this expression. With advancing civilization—or what passes current as such—the sanitary necessity for, and uses of, water are now greater than ever. At the same time, the multiplication and intricacy of the details of its distribution have resulted in a much larger amount of water having to be supplied than is actually necessary for the wants of the consumers, or is used by them. Hence the common difficulty of obtaining a sufficiency for urban populations.

For sanitary use, water should be distributed under *constant pressure*, as is pretty generally the case in Newcastle. Sometimes, however, the pressure in the high parts of the town has been deficient, and occasionally the service in certain streets has been intermitted.

The supply to houses ought to be so distributed over the premises as not only to be had for the carrying, but to be ready for use wherever it is wanted, without (or with the least possible) hand-carriage. Mere plenty, without ample facility, is insufficient to ensure free use.

To supply Water to yard taps only causes waste.

Water should be laid on to each tenement floor. Baths necessary.

It has been said* that "if modern London were supplied in the same wasteful and unscientific manner as ancient Rome, the quantity required would exceed the average flow of the Thames at Kingston, and whilst this immense volume of water would be rushing from public fountains and down open channels, the inhabitants would be totally without the comforts and advantages they at present enjoy of a domestic water supply delivered under pressure into each of their houses." We may go further than this, and describe as "wasteful and unscientific" the present system, which carries the Newcastle water, in very many instances, to the yards of the houses only. Not only should the appliances provide for the free and ready use of cold water on every floor, but of hot also. A bath should form part of the furniture of every house, tenement or private, and its frequent use by every member of the family should be a matter of course. There should be no leakage from fittings, and the drinking water should be free from contamination on private premises. The details of the water apparatus should be worked out with distinct reference to the object they are intended to fulfil, namely, the liberal use of a sanitary requisite.

Misuse of Water —Different forms of

The term "Misuse," as applied to water, includes a large variety of faults, such as taps left running; leakages undiscovered or undealt with; arrangements limiting in any way the free employment for health purposes of water whilst it is flowing by; its supply *by meter* for objects of cleanliness to slaughter-houses, fishmongers, stablekeepers, &c., tending thereby to check its use; faulty details of mechanism and apparatus so as not to get the full benefit of the supply†; waste from any cause either by the consumer or the supplier. Under the latter head may be included the item of storage-reservoirs insufficient to hold the largest rainfalls, such as were available last winter, thus causing the overflow of stock which may be required at a future time.

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* "Health Exhibition Literature," 1884, Vol. VIII., p. 536. Article on "Water Distribution," by Henry J. Marten, M. Inst. C.E.

† Two very fertile sources of waste are water-closets and overflows from cisterns.

The employment of filtered water for non-dietic purpose is a form of misuse which would not be mentioned here were it not that, as has been already stated, the unnecessary filtration of so large a quantity of water as is sent through the mains is likely to result in imperfect purification of the comparatively small amount which ought to be free from all contamination.

The uncontrolled escape into the air of uncondensed steam in a large manufacturing town like Newcastle is also an important element in the matter of waste.

The power to cut off a domestic supply on the landlord's failure to pay the water rate sometimes comes hardly upon the tenant, and is an impediment to sanitation.

Certain advantages to consumers in Newcastle.

It would be unjust to the Water Company to omit to mention certain facilities afforded by them for the sanitary use of water by consumers. Thus water for sanitary purposes (water-closets and urinals) in factories and shops is not charged for additionally according to number of employees, as at Glasgow and some other places; neither are special charges made in the case of certain trades, water for gardens, fountains, private carriages, horses, &c., as under the Waterworks Clauses Act, 1863, might be done.

Charges for Water-closets, Baths, "extras."

Owing to the different systems of rating in different towns, it is difficult to compare the respective charges for water supplied to tenement dwellings; but it would appear that in Glasgow, Manchester, and Birmingham, these are similar to our own. The Newcastle Water Company have "no extras" in their charges, except for baths and w.cs. The charge for w.cs. is 10s. per annum in a house of £50 rental, and for baths, 6s. each per annum. In Leeds, the charge for closets is 5s. 4d. per annum for one, and 2s. 8d. for each additional, where there are more than one. In Birmingham and Manchester (?) one w.c. is allowed without extra charge.

In Newcastle only, among the towns above named, do baths appear to be specially charged for.

Public Rate levied for Water in some towns.

In Newcastle no public water rate is levied by the Corporation. In Glasgow, this public or Corporation rate is 1d. in the £1; in Manchester, 3d.; and in Liverpool, 6d. In Birmingham, Leeds, and Bradford, no public rate is charged. The absence of public rate does not, however, imply a cheaper supply. In Glasgow the total rate (domestic and public), not including extras, is 9d.; in Manchester, 1s.; in Liverpool, 1s.; in Birmingham, 1s.; in Bradford, 1s. to 1s. 6d.; in Leeds, 9½d. to 1s.; and in Newcastle, 8d. to 1s.

Waste immense.

The waste of water in towns is immense. Any one acquainted with tenement property will be familiar with the spectacle of the yard tap streaming unheeded, and in many private households the same may be seen. These taps are very rarely self-closing, and it is not too much to say that in many cases more water is wasted by, than is used through them.

In frosty weather, owing to the exposed situation of the pipes, the householder—both in private and tenement dwellings—is apt to leave his tap running purposely to prevent freezing up. Water-closets are also a very serious cause of the misuse of water through defect of fittings, etc. Leakage through faulty pipes, too, goes on to a large extent. From these and other sources the supply is improperly and seriously drawn upon.

"It is generally agreed by those in charge of water supplies that from a quarter to one half of the water furnished is actually wasted."* This statement by an American is confirmed by the experience of London and Liverpool. In the last named town the waste has actually been reduced by one-third of the daily supply.†

There is good reason to believe that Newcastle is no exception to the rule. Over and above the ordinary waste of water, it may safely be assumed that the amount consumed on household property in frosty weather is doubled or even trebled by waste from taps purposely left open.

Waste causes want.

The water scares and famines we have experienced in the past have been more the consequence of waste than of legitimate use ; for the latter can be estimated and provided for, but the former cannot. If the hygienic use of water were anything like what it ought to be in tenement dwellings the ordinary supply, drawn on as it is by waste, would not be enough. But this is a reason not for use-prevention, but for waste-prevention. Apropos of waste, many persons consider that the dribble of taps is an advantage by helping to flush the drains and sewers, which is a mistake, as the stream is too small to be of service in this way.

Who is responsible?

*Who is responsible for the large and constant waste of water?* Primarily, the consumer, but principally the suppliers, for they have control over both supply and those who waste it, and should know when an undue quantity is passing from their mains to any premises. Strict inquiry into all sources of waste should be accepted by Water Companies as a public duty, irrespective of the question of taking care of their own property.‡

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* Ripley Nicholls.

† "Health Exhibition Literature," Vol. VIII., p. 419. Article by Edward Easton, M. Inst. C.E.

‡ The responsibility of Sanitary Authorities has alraady been referred to.

Waste Detection.

*How far is waste capable of detection?*—Constant waste from leaking pipes, open taps, defective appliances, etc., may be located and guaged with great precision. The system of supply by ordinary meter is employed by Water Companies in their own interest to prevent copious use without proportionate payment. A proposal has been made to supply households by meter, allowing a certain amount per house for the regular water rate, and charging extra for any additional quantity drawn.* Sanitarily, this system has not much to recommend it. Waste preventing cisterns for w.cs. also are, under existing limit as to size, objectionable. "Warning pipes" and "safe-tray wastes" are useful for showing defects of cisterns and leakage from w.c.'s, but these pipes demand systematic inspection in private households, and are also insufficient as they indicate constant waste from certain sources only.

Apparatus for

Apparatus of different kinds are in use, by which constant waste of any kind is shown without domiciliary visit. Perhaps the best known of these is the well-known Deacon's "Waste-water Meter," by the City Engineer of Liverpool. This meter, and others by Church, of New York, and Bell, of Cincinnati, are described in Nicholl's "Water Supply" already quoted.†

Deacon's apparatus distinguishes constant, steady waste, such as goes on during the night, from the variable flow drawn off for use from minute to minute, and has been highly successful as a detector and localiser of waste in many larger cities, both in this country and in America.

"Detectors" save water.

In Glasgow, for example, in Napiershall Street, occupied by a middle-class population, the rate of consumption was reduced during the day at the rate of 50 gallons per 24 hours, and during the night at the rate of 31 gallons per 24 hours per head.‡

In Newcastle, the Water Company use Kennedy's meters in combination with Guest and Chrime's "Clock-meter" Indicators. These are said to register the amount of water passing through the main pipes in a given time, distinguish between steady waste and the irregular flow of ordinary use, and are available for the localization of the waste through individual service pipes.

It is understood that the Water Company are at present actively engaged in the detection of waste of water in Newcastle, and the strict examination of domestic fittings with the view to its suppression.

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* "Health Exhibition Literature," Vol. VIII, p. 420. Article by Edward Easton, M. Inst. C.E. A similar system is described in Nicholls' "Water Supply," 1883. p. 203.

† Deacon's meter is also described in the "Journal of the Society of Arts" for May, 1882.

* "Sanitary Records, 27th January, 1877."

Detection of domestic leakage of pipes underground.

Leakages in private pipes underground may, owing to porosity of soil or other causes, be difficult to detect without laying bare the pipe from end to end. In such cases it has been suggested to the writer that an effective means of detecting whether such leakage was going on is likely to be found in the delicate apparatus devised by Mr. Charles Hawksley, M. Inst. C.E., for indicating accurately minute leakage in drain pipes by gas pressure, guages, and a force pump.*

*Domestic Consumption* includes water required for drinking, cooking, baths, washing (of clothing, utensils, dwelling, furniture, etc.), and flushing of closets and urinals.

Certain particulars relating to domestic consumption in Newcastle.

The following are extracted from the returns of the House-to-house Inspection of 1884-5.

WATER SUPPLY.

| SANITARY DISTRICTS. | Inhabitants. | Baths. | Lavatories. | WATER-CLOSETS. |  | BY TAP. |  |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  | In-door. | Out-door. | In-door. | Out-door. | Tenants to a supply. | Persons to a supply. |
| 1 | 40,336 | 650 | 582 | 1,178 | 3,489 | 2,649 | 3,663 | 1·4 | 6·4 |
| 2 | 41,041 | 746 | 555 | 1,604 | 3,476 | 4,273 | 2,508 | 1·5 | 6·1 |
| 3 | 37,891 | 1,071 | 1,072 | 2,326 | 2,577 | 2,631 | 3,157 | 1·7 | 6·5 |
| 4 | 26,595 | 237 | 100 | 192 | 341 | 1,977 | 2,054 | 1·4 | 6·6 |
|  | 145,863 | 2,704 | 2,309 | 5,300 | 9,883 | 11,530 | 11,382 | 1·5 | 6·4 |
|  |  |  |  | 15,183 |  | 22,912 |  |  |  |

TAPS AND WATER-CLOSETS.

| SANITARY DISTRICTS. | TENEMENTS. |  |  |  | SELF-CONTAINED. |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  | TAPS. |  | W.C.'S. |  | TAPS. |  | W.C.'S. |  |
|  | In. | Out. | In. | Out. | In. | Out. | In. | Out. |
| 1 ... ... | 249 | 1,107 | 85 | 692 | 2,400 | 2,556 | 1,093 | 2,797 |
| 2 ... ... | 322 | 795 | 191 | 349 | 3,951 | 1,713 | 1,413 | 3,127 |
| 3 ... .. | 270 | 887 | 234 | 434 | 2,361 | 2,270 | 2,092 | 2,143 |
| 4 ... ... | 55 | 375 | 4 | 20 | 1,922 | 1,679 | 188 | 321 |
|  | 896 | 3,164 | 514 | 1,495 | 10,634 | 8,218 | 4,786 | 8,388 |
| Self-contained... | 10,634 | 8,218 | 4,786 | 8,388 |  |  |  |  |
| Total ... | 11,530 | 11,382 | 5,300 | 9,883 |  |  |  |  |

On an average there is one tap water supply to every 1·5 households or 6·4 resident persons.

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* "Sanitary Engineer," 26th March, 1885.

Water required for closets.

The above water-closets are estimated to be used by about 90,000 persons, or an average of, say, six persons to each ; 90,000 daily flushes of the closets at the regulation amount for each flush (2 gallons) represents a daily consumption of 180,000 gallons of water for closets alone, exclusive of waste. In this estimate account is taken of the water used for closets for dwelling houses only and not those of Public Institutions, the railway stations, etc.

Fallacy of estimating amount properly used for sanitary purposes by average consumption per head.

It is difficult to estimate the domestic consumption of water for baths, washing, and dietic purposes daily going on in Newcastle. The filtered water supplied to the City is not kept separate from that for Gateshead and the outlying districts, hence the actual amount consumed in the City alone is not known.* Even were it otherwise there would still be difficulty in computing the total consumption for sanitary purposes. If every person in the district actually used the amount of water with which he is debited by the Company, or which is desirable for health, the change would soon be evident on the stock in the reservoirs. The average "amount per head" of water supplies is often quoted, and prominently set forth. But this is no criterion of the consumption for sanitary purposes without a knowledge of that used for other purposes and wasted. The general supply may be ample, but if trade and misuse consume it, the householder is indeed being tantalized. It is not at all to be inferred that Novocastrians are in this unfortunate condition. On the contrary, we are at present well off for water ; but the drain on the supply has before now been sufficiently great to suggest the idea.

The comparison of the water supplies to private and tenement dwellings almost completely explains how the latter are generally so dirty.

Taps and water-closets in tenements and self-contained houses compared.

| | Households occupying self-contained dwellings, including houses in flats. | Tenement Dwellings. |
|---|---|---|
| TOTAL DWELLINGS ... ... ... ... | 21,462 | 13,329 |
| TAP WATER SUPPLIES— | | |
| In-door ... ... ... ... ... | 10,634 | 896 |
| Out-door ... ... ... ... | 8,218 | 3,164 |
| Totals ... ... ... ... | 18,852 | 4,060 |
| Average number of Tenants to each Tap-supply | 1·1 | 3·3 |
| Do. Persons ... ... ... ... ... | 5 | 12·8 |
| WATER-CLOSETS— | | |
| Average number of Tenants to each, in water-closeted property ... ... ... ... | 1·6 | 6·6 |
| Do. Persons ... ... ... ... ... | 7·1 | 25·9 |

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* Estimated at the rate of 30 gallons per head in a population of 150,000 the daily amount would be 4½ million gallons.

Two-fifths of the families in Newcastle occupy tenement dwellings, and these, taken as a whole, are only one-third as well supplied with water as their neighbours in private houses. Besides, they are put to more trouble to obtain it, since for every tenement with an in-door tap, there are four without such a convenience, the only supply being outside—often in the yard of an adjoining house—or at a considerable distance.* About half of the self-contained houses on the other hand have water in-doors.

In water-closeted property the advantages and capabilities for preserving cleanliness are four to one in favour of the private householder as against the dweller in tenements.

It is scarcely necessary to say that baths and lavatories are conspicuous by their absence in tenement houses.

One thing in favour of the tenement occupier in Newcastle is that his drinking water is not liable to contamination in cisterns as may be the case with his wealthier neighbours, for he usually draws it direct from the main.

## 3.—REQUISITES OF DOMESTIC DISTRIBUTION OF WATER.

Requisites of pipes.

After the Company have delivered their water upon any private premises, various apparatus are necessary in order that the consumer may have the full benefit of the supply. These differ considerably in different classes of house property. Thus, in tenement dwellings, the appliances are usually very simple, not to say scanty. In every house certain requirements are necessary for the proper supply of water for hygienic purposes. Thus, the *pipes* should be of sufficient calibre and of sufficient strength to resist the greatest pressure to which they are likely to be subjected.

The regulations in London† require that lead pipes shall be "of equal thickness throughout, and of at least the weight following, that is to say:—

| Internal diameter of Pipe in inches. | Weight of Pipe in lbs. per lineal yard. London. | Newcastle. |
|---|---|---|
| inch. | lbs. | lbs. |
| $\frac{3}{8}$ | 5 | $4\frac{1}{2}$ |
| $\frac{1}{2}$ | 6 | 6 |
| $\frac{5}{8}$ | $7\frac{1}{2}$ | — |
| $\frac{3}{4}$ | 9 | 9 |
| 1 | 12 | 12 |
| $1\frac{1}{4}$ | 16 | 20" |

The weights of pipe required by the regulations in force in Newcastle are given alongside for comparison.

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* See "Specially defective supplies," page 67.

† Regulations made under the Metropolis Water Act, 1871, see report of Col. Sir Francis Bolton, C·E., on Water Supply (Metropolis) July, 1884.

Down-pipes for the discharge of water into water-closets in the metropolis, "shall have an internal diameter of not less than one inch and a quarter, and if of lead, shall weigh not less than nine pounds to every lineal yard."

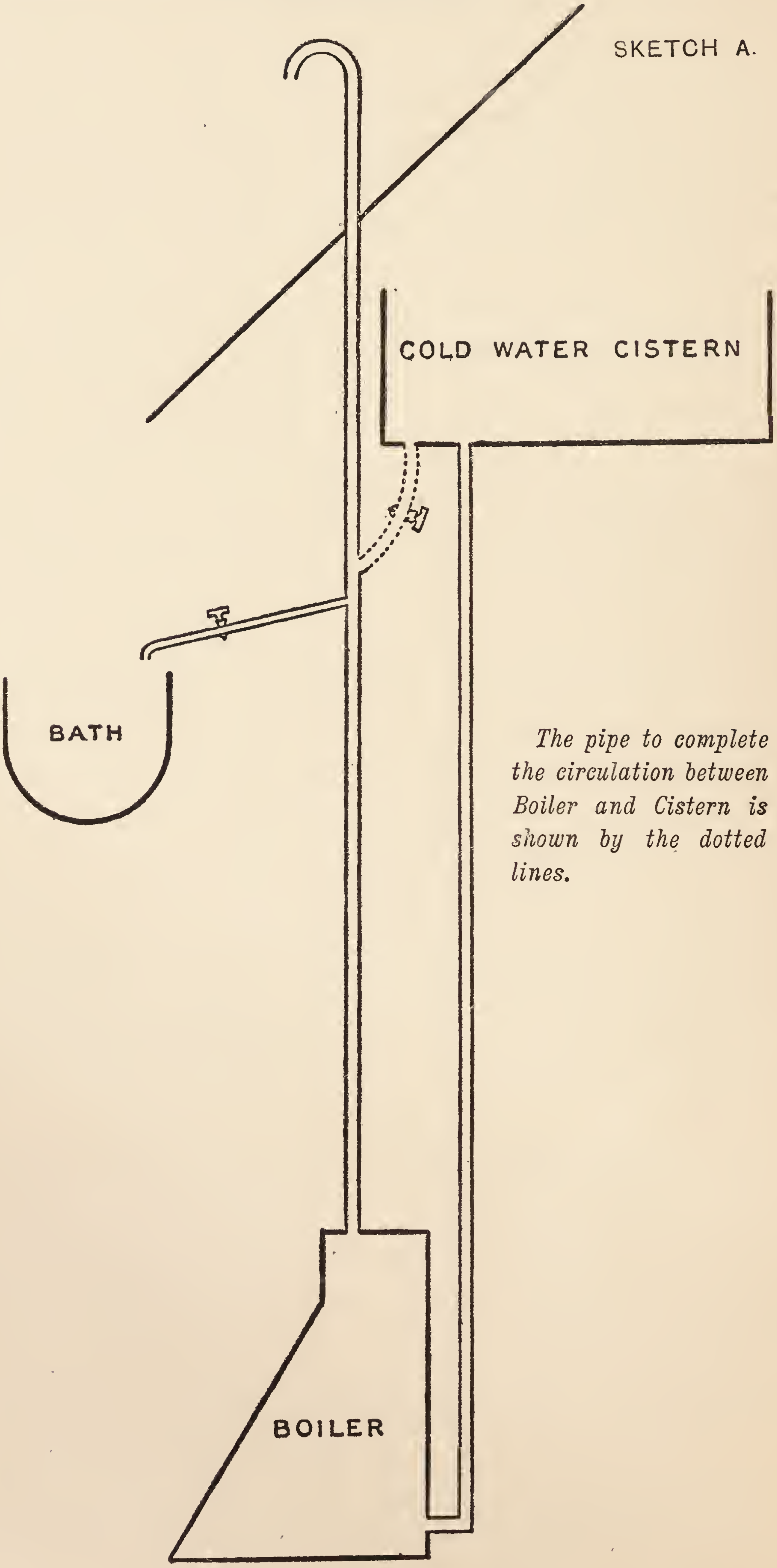
Protection of pipes against frost—Other requisites.

Water pipes should also be protected from injury and frost, those outside of the house by burial in the earth to a depth of about three feet; those inside by suitable casings or other means. Their exact position should be known from end to end. Those within doors should be readily accessible and visible at every point, and not buried in the walls. They should convey the water to every floor of the house where it is to be used, the cost of piping being nothing in comparison with the extravagance of raising water by human, instead of hydraulic power. Besides, it may be accepted as an axiom that economy of household pipes, and taps is waste of water. The outlets of the pipes should be efficiently controlled by suitable taps, valves, etc., of good make to prevent leakage. There should also be a readily reached stop-cock for turning off the supply, just after it enters the house, when required, and an exhaust tap immediately above this for draining all the cold water pipes beyond. These are useful in frosty weather, and in case of accident. In the complete drainage of pipes, it is necessary that they should incline regularly from end to end, without "loops" or "bags" for water to lodge in. In self-contained houses with baths, but without a hot-water cistern, as is frequently the case in Newcastle, an excellent plan for preventing the freezing of the water in the pipes between the cistern, boiler, and bath, is to make a direct connection between the hot water pipe from the boiler and the cold water cistern, and put a stop-cock on the connecting pipe. This stop-cock on being slightly opened, allows the warm water to circulate as slowly as may be wished through the cistern, the contents of which, and of the pipes, may thus be kept above freezing point. A sketch of which arrangement is given on the following page.

After several years' experience in his own house of this arrangement of warming, together with stop-cock and drainage tap inside the back-door, the writer can testify to its efficacy. Even during the long and severe frost of the winter which is not yet over, it has answered exceedingly well. Those who have suffered many things of many plumbers may imitate with advantage.

# ARRANGEMENT TO PREVENT FREEZING OF DOMESTIC WATER-PIPES.

SKETCH A.

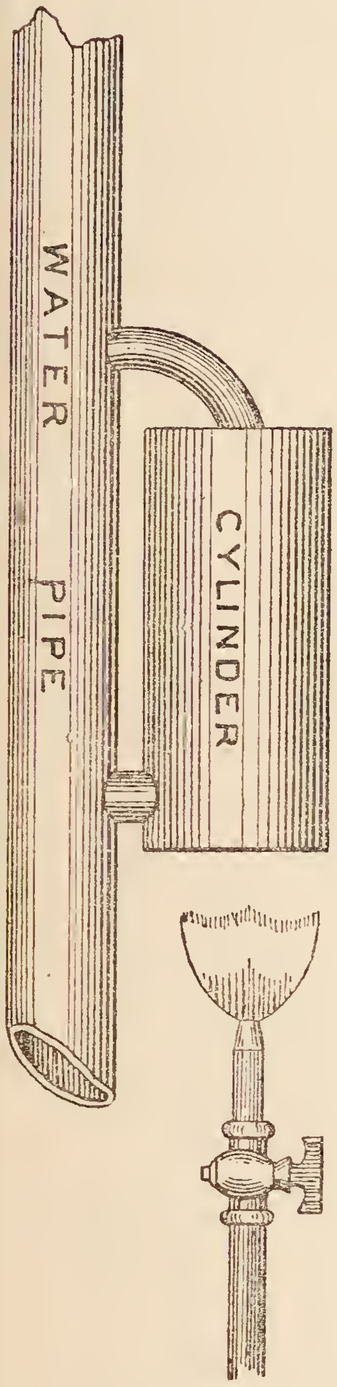


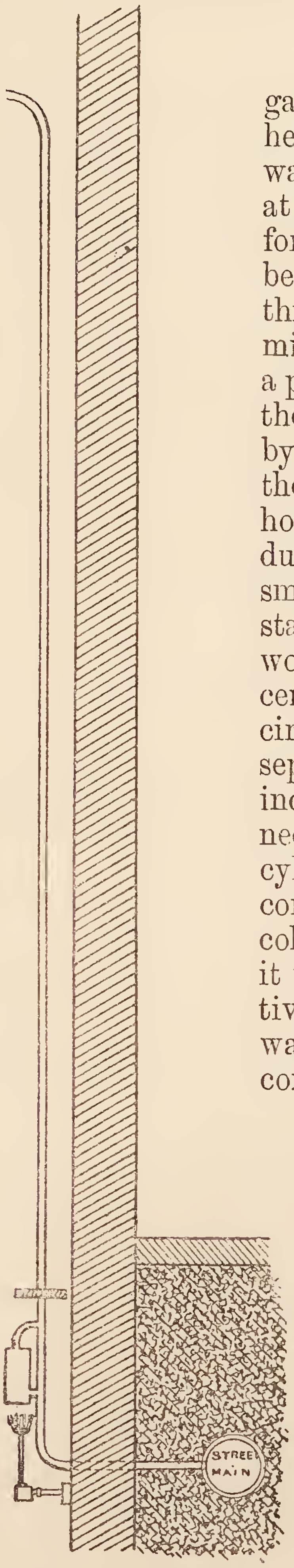
*The pipe to complete the circulation between Boiler and Cistern is shown by the dotted lines.*

An alternative method of preventing the freezing up of water pipes is that proposed by Ald. J. Bailey, Salford,* as follows :—

"If a little cylinder and gas-jet be used, as illustrated here, the water may be kept warmer than freezing point at a very small expenditure for gas. The cylinder may be about six inches long and three inches diameter, and might be fixed in the cellar at a point where the water enters the house, being connected by a small tube at each end to the water-supply pipe of the house. Under this cylinder, during frosty weather, a very small jet of gas might be constantly kept burning, which would cause the water to ascend and thus promote a slow circulation. If, however, a separate pipe, quarter of an inch bore, were to be connected to the top of the cylinder, and then taken and connected to the highest and coldest part of the water main, it would be made more effective, as the circulation of warm water would then be complete."

SKETCH B.





*Ald. Bailey's method for preventing freezing up of water-pipes.*

In better-class houses, the occupier should have a plan of all pipes, both for water and gas. Pipes for the removal of dirty water in houses should everwhere accompany and correspond with those for clean water—

Plan of pipes desirable.

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* "Sanitary Record" for October, 1875, from which the figure is also taken.

as veins to arteries—and be considered parts of the system. The want of this provision in tenement property throws the often heavy labour of slop-carriage on the housewife, and seriously checks the free use of water for cleansing purposes.

*Taps, &c.*—Of the many appliances for securing the proper use of water, and the prevention of waste, none is more important than that of the tap. But more waste of water, both negligent and wilful, goes on through taps, than from any, and perhaps every, other cause. Of those in tenement property, nine out of ten, are at most times to be found leaking or left open, and in private dwellings the same occurs in less degree. To prevent freezing up of the pipes in winter, it is customary to keep up a constant dribble through the tap, which with a properly arranged system such as above described should be unnecessary.

Requisites of a good water tap.

The requisites of a good tap are—

1. It should be simple in construction and not liable to get out of order.
2. It should close automatically and completely, when not held open.
3. In closing it should stop the current of water gradually, and not with a shock and strain to the pipe.

The common or "plug" tap meets none of these wants, except that of simplicity of construction. It is prohibited in London. The "screw-down" tap is better than the "plug," inasmuch as it complies with requisite No. 3. It is not self-acting. The Newcastle and Gateshead Water Company, in their printed regulations require all taps to be of the "screw-down" variety.

*Self-closing Taps.*—"Spring" taps are open to the objection that on closing they cause shock and strain to the pipes. Their employment is usually prohibited by water companies.

Other self-closing taps have been devised, which have not the objection last named. Among these are :—

1. Kennedy's (Kilmarnock) Patent Self-closing Wall-fountain or Stand-Pipe.
2. John Russell & Co.'s (London) Patent Perpetual Self-closing Cock.
3. W. H. Bailey & Co.'s (Salford) Patent Self-closing Tap.
4. Lambert's (London) Waste-water Preventer. (This tap closes of itself after passing two gallons of water or other regulated quantity.

Self-closing taps recommended.

Kennedy's patent is suitable for outside use as in courts of tenement property. The others are for either in-door or out-door purposes. It is much to be desired that the use of self-closing taps for domestic purposes were universal. There can be no question as to the large saving of water they would effect.

To prevent concussion from sudden closing-off of the water, the pipe is sometimes continued past the tap as a receptacle for air—to act as a buffer. A form of this air chamber is figured on p. 224 of the American work "Plumbing and House-Drainage Problems," already quoted.

Cisterns—dangers from.

*Storage.*—The danger to health from contamination of dietic water on private premises is now a truism. To avoid it some have gone so far as to oppose altogether the storage of water in house-cisterns. All authorities now recommend separate cisterns for dietic water. In private houses in Newcastle, the use of one cistern for the storage of water for closet and for general purposes is frequent, the separate dietic cisterns being rarely met with.

The water in the yard is generally, and that at the kitchen sink is, in many cases, drawn directly from the main; but even then as there are usually on the upper floors taps for the lavatory or housemaid's sink, supplied from the cistern for the water-closet, there is risk of contaminated water being used to fill the dressing room water-bottles. The to supply the kitchen boiler comes usually from the same cistern as the flush for the water-closet, which should not be allowed.

In the tenement property of Newcastle, cisterns are rarely met with, except for water-closets; hence the danger to the poorer classes from contamination of water after delivery is inconsiderable.

For water-closets, cisterns are indispensable, and for purposes other than dietic, they are desirable in self-contained dwellings, but perhaps not in tenements, where the water-closet system seldom works satisfactorily.

Requisites of

The cistern should be readily *accessible*, and not as is frequently the case, fixed in some out of the way place, and reached by an overhead trap-door, too small to admit an ordinary sized person, and never intended for the servants of the house to go through. The best *material* recommended is slate or galvanised iron. Lead cisterns are more in use here than any other—even for drinking water—and without apparent ill results to the consumers, the water itself having no appreciably solvent action on lead. With our lead cisterns and lead pipes, the supply of a softer water would soon give rise to an epidemic of lead poisoning!

In regard of *size*, it is recommended that cisterns should be of sufficient capacity to contain enough water for at least two days consumption, in case of non-supply by the Company, or break-down in the service fittings.*

The *form* of cisterns is important in relation to the action of frost, by which they may be burst if improperly shaped. It is recommended that they should have sloping sides, and the top larger than the bottom, so that freezing water may have room to expand upwards.† The chamber in which the cistern stands should be lighted by window or skylight, and ventilated. Some recommend gas lighting as a means of keeping up the temperature in winter, but if the circulating system previously described be employed, this is unnecessary.

The *overflow* from the cistern should never communicate with any drain or soil-pipe, but should always be disconnected and made to discharge in the open air, otherwise sewer air is liable to rise up the waste-pipe, and so contaminate the water. Even if the cistern is not used for dietic water, the escape of foul air from the sewer, by means of a connected waste-pipe, should not be permitted. The practice of connecting the cistern waste-pipe with the soil-pipe, which is still observed occasionally, is particularly bad. To prevent the admission of cold air to the cistern chamber, in winter, and of dust in dry weather, it is advisable to provide a flap valve at the outlet end of the cistern waste-pipe, as is done in America.‡

It is sometimes recommended that every pipe to convey water from a cistern should be guarded by a valve at its inlet under ready control, or by a screw down stop-cock immediately below the cistern, so as to allow of the cutting off of the discharge from the cistern in case of accident It is highly important, however, to note, that the supply pipe to the boiler should *on no account be closed whilst the boiler is heated*—either in winter or summer—otherwise there is a great liability to an explosion of the boiler. For this reason it is advisable to omit the means of closing this pipe unless the boiler be provided with a safety-valve.

Every cistern for dietic water should have a *cover* to protect from dirt. Cisterns should be cleansed frequently, especially when the filtration of the water by the Company is imperfect. This is seldom attended to properly, even by householders who complain of the supply as delivered, which they often allow to become more objectionable by contact with the accumulated sediment of months or years in a dirty domestic storage receptacle. Lead cisterns should not, however, be too often or too heavily *scrubbed* on account of the danger of removing the very thin, but protective, insoluble pellicle, which water, such as ours, quickly forms on the bright new surface of the metal, and prevents its solution.

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* "The Plumber and Sanitary Houses."—By S. S. Hellyer.

† "Our Homes and How to Make them Healthy."—Edited by S. F. Murphy, M.R.C.S., which contains much valuable information on plumbing, and the distribution of water.

‡ "Plumbing and House-Drainage Problems," p. 220.—New York, 1885.

Dietic Water best drawn direct from the main.

Dietic water is always best drawn "direct from the main." Water for kitchen boilers, however, cannot be supplied in this way, unless by hand, which is inconvenient. When pressure in not required for circulation to baths, etc., the boiler may have a separate cistern of its own—technically known as a "breast-cistern."

Cisterns supplying waterclosets should not on any account have a "draw-off tap" in connection with any pipe from them.

Need of "good flush."

*Water-closets.*—One principal requisite of a water-closet in regard of water supply, is that there should be a "good flush," by which is meant an ample discharge of water delivered into the basin, with sufficient force to sweep away all before it into the sewer. Any structural arrangement limiting unduly either the amount or velocity of water in this particular is insanitary. One of the regulations of the Water Company, with regard to this, is of this character, viz.:—that which limits the amount of each flush to two gallons. In this respect, the Newcastle Company have only imitated others, but they are none the less in error, as has been shown by competent judges.

> "Two gallons of water to carry away a deposit in a water-closet through some scores of feet of soil-pipe and drainage, flush these pipes out after its passage, and cleanse the whole! . . . . One is curious to know how and where this exact quantity of water was calculated, and on what sort of water-closet it was tried.. . . Suppose it takes two gallons of water for a water-closet fixed in the basement (where we have guessed the discovery to have been made), to cleanse the closet after usage, wash out the trap, and deliver the deposit into the sewer. How much water will it take for a closet fixed on the second or third floor, at the rear of the building, with about fifty feet more soil-pipe, and fifty or sixty feet of additional drainage? Why, it would require this quantity of water *to wet the pipe*, and two or three such discharges to thoroughly cleanse the closet, trap, soil-pipe, and drain after the passage of the soil through it, and to keep it wholesome."*

Observations to the same effect are made by Messrs. P. Gordon Smith and Keith D. Young, in their article on "Architecture," in a work already quoted.†

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* "The Plumber and Sanitary Houses."—By S. S. Hellyer, London.

† "Our Homes, and how to make them Healthy." p. 147.

To obtain a good flush, the *stream* of water must be considerable. The Water Company's regulations require the flushing-pipe to be not less than 1¼ inch in diameter, which is too small a minimum.

It is desirable that an abundant discharge of water should take place after every occasion of using the closet, independent of the voluntarily prolonged holding of the handle, necessary in many forms of closet, which are, in consequence, seldom thoroughly flushed after use by women and children.

The necessity for a separate cistern for closets has already been referred to.

The closet cistern should be furnished with an arrangement for securing a good flush, preferably by some automatic mechanism connected with the seat, as at the railway station; or by some other apparatus which, when once set in action, would not cease until the proper quantity of water has been discharged.

The cistern of a closet should never be dependent on rainfall for its supply, as is sometimes the case.

The fittings for flushing should be simple in construction, well made, and durable; otherwise, they very soon give rise to one of two evils—improper flushing, or waste of water. The joint of the flush-pipe to the basin of the closet should be perfectly made, otherwise it will give rise to considerable waste of water, which, from the position of the defect, may go on for a long time without detection.

**Hot water apparatus.**

*Hot Water Apparatus.*—This commonly comprises the kitchen boiler (or "water-back," as the Americans term it), hot tank or cistern, bath, and communication pipes. Occasionally hot water pipes are used for warming lobbies, rooms, etc.

Apart from the question of the quality of the water supplied to kitchen boilers, etc., hot water apparatus is a matter of sanitary importance for various reasons, among which, two may be mentioned particularly, viz.: 1st, the benefit to health from the use of hot water for baths, and general cleansing purposes; and 2nd, the danger to life from the explosion of boilers.

**Hot water appliances desirable for tenement property.**

Reference is made here to the use of hot water as a household requisite for cleansing and baths, among other reasons, for the sake of advocating its free introduction into tenement property, as a powerful hygienic agent, equally necessary to the health of working men and their families as to people in other ranks of life, if not more so, on account of the occupation and surroundings of the former. Yet boilers and baths in tenement property are almost unknown. As has been suggested,* and as has actually been done, baths might be fitted up in the kitchens of tenement dwellings, and enclosed, to look like seats ; and to be used as such. In many houses, a more economical and practicable plan would be to have one bath available for several families. The water might be heated in a boiler in the basement, and circulated to each landing, which would be a great boon to the housewives and beneficial to all on the premises.

In some of the recently built self-contained "flats" of Newcastle, baths are fitted up in offshoots adjoining the sculleries, and fed, by gravitation, with hot water from the open scullery-boilers or "pots."

Kitchen boilers explosions—cause of.

With regard to *Kitchen Boiler Explosions*, which are apt to occur from frost, and in other ways, all that will be said at present refers to their causes and prevention. Although the causes are better understood now than formerly, and have been on different occasions clearly demonstrated† the conditions liable to give rise to them abound in old dwellings, and are continually being repeated in new to such an extent as to cause surprise that these frightful occurrences are not more frequent.

Boiler explosions are said to be due chiefly, if not entirely, to stoppage of the circulating pipes—

1. By ice ;
2. By closure of stop-taps ; or,
3. By furring up of pipes, etc.

If the kitchen fire be lighted whilst the pipes are stopped an explosion is almost inevitable when the water becomes heated to a certain degree, the limit to which will depend solely on the resisting power of the material of which the boiler is made.

The fixing of hot water apparatus is a matter not for the plumber, who rarely understands the seriousness of the work of this kind he undertakes, but for an engineer. The details should always be subject to the approval of the Sanitary Authority, and should be carried out under official inspection.

Prevention of explosions.

The preventive measures recommended by the writers before named are :—

1. A safety valve on the boiler. (This is strongly insisted on by both.)

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* "The Plumber and Sanitary Houses."

† "Sanitary Record," 2nd October, 1875. Paper by Ald. Bailey, Salford, on "Kitchen Boiler Explosions;" also Pamphlet entitled, "Review of the Facts and Records in connection with Kitchen Boiler Explosions," by Samuel B. Goslin, Hydraulic Engineer, London, 1881.

2. A stop-tap in the bottom of the bath boiler to empty it in case of the house being left unoccupied.*
3. The boiler to be of good welded wrought iron, properly tested before using.†
4. Periodical inspection and report as to strength and safety and need of cleansing.†
5. To have a pipe-trunk for pipes in a protected position, and and not near an external wall.†
6. Cisterns to be protected from frost and easy of access.†

The arrangements for keeping the water in the pipes above freezing point, as described on page 80, will probably prevent stoppage by ice; but a safety-valve, which can be had for a few shillings, should be fixed in connection with every kitchen boiler.

When kitchen boilers are provided with safety-valves, it is important that these should be fixed in some readily accessible position, so as to allow of their systematic inspection from time to time, and to prevent their getting fouled with smoke or dirt. They are sometimes placed on the hot water pipe immediately after it leaves the boiler.

**Hot-water tanks and cylinders.**

*Tanks, Cylinders, or Cisterns for Hot Water.*—These, though now more common in Newcastle than formerly, are not yet generally found even in houses of better class. Their use is, of course, to give a larger supply of hot water than can be got with the ordinary kitchen boiler alone. In houses where they are not provided, it is generally impossible to have more than one hot bath in an evening owing to the small capacity of the kitchen boiler, and the time required to heat a second supply of water. Many of the explosions in other towns have been connected with these hot tanks the communication pipes to which have been stopped by tap, or otherwise, whilst steam was being generated in the boiler.

**A defect of steam escape pipes.**

A defect met with in some Newcastle houses in connection with the means intended to prevent explosion, is that the steam escape pipe is occasionally carried through the roof to the open air, where it is ordinarily filled with water to the level of the storage in the cold cistern. This water in frosty weather becomes ice—thus blocking the pipe. Such pipes sometimes burst in winter, but whether from the direct action of ice or steam it is difficult to say.

Among the causes of boiler explosions reference was made above to "furring up" of pipes. The deposit on the interior of pipes and other portions of the hot water apparatus in Newcastle houses is considerable, and becomes a source of inconvenience as well as danger. A piece of hot water communication pipe lately given to the writer, after being in use for three years, contains a deposit inside of ¼ of an inch thick. The inner diameter of the pipe is now reduced from 1 inch to ½ an inch in diameter. Thus:—

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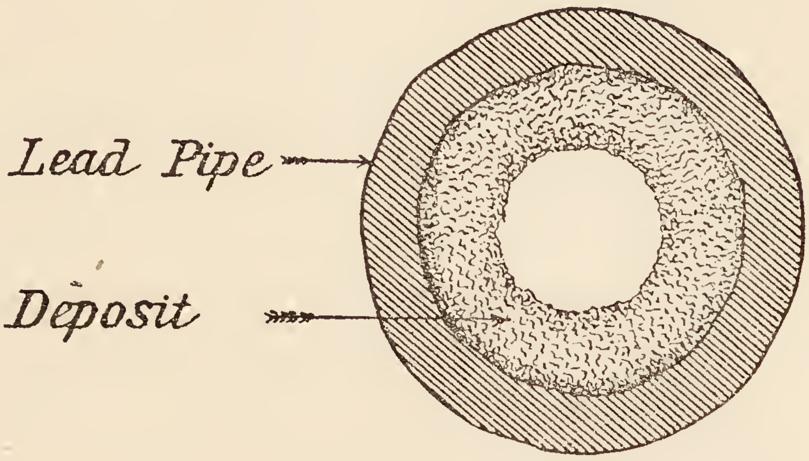
* Ald. Bailey. † Mr. Goslin.

*Section on an inch-pipe for hot water, shewing waterway reduced to half an inch in diameter by "furring-up," after three years' use.*



The crusting of kitchen boilers also is the cause of much difficulty in heating water.

Importance of good fittings.

*Quality of Fittings. etc.*—Good pipes and fittings are necessary, not only to prevent waste, but to secure a proper supply to the consumer.

> "Water Companies can hardly be too strict or look too sharply after their water, for there are such trumpery ball-cocks and ball-valves used that they are really nothing less than water-wasters. And the general service supply fittings are, in many cases, of such a flimsy character that they break down almost as soon as they are used."

This testimony of an eminent plumber—and one who "ought to know,"* is hardly an encomium on the trade either of plumber or builder.

The amount of waste from defective fittings is probably great. A bad ball cock has been known to waste 12 gallons a day.† How many bad ball cocks are there in Newcastle? and how many gallons a day do they waste? are questions of interest to the Water Company and to the public also, who have not rarely been put on short allowance, which perhaps strict prevention of waste might have rendered unnecessary.

Evils of service and defective pipes.

*Service.*—Although Newcastle is as a whole supplied on the "constant service," and rightly so, yet in periods of scarcity the water of individual streets is frequently intermitted. The intermittent system only has been generally held up to blame as being the cause of the spread of Enteric

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* Hellyer. "The Plumber and Sanitary Houses." † Parke's "Hygiene."

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Fever through leaky pipes passing near middens, etc., and receiving noxious matters during the time the water was off. It is a mistake to suppose that the same mischief will not arise with the "constant service," for, strange though it may perhaps appear, it is a fact that, at least, under certain circumstances, a current of water in a defective pipe, will draw air *into* the pipe, instead of allowing water to discharge through the leak, as might have been expected. This fact may easily be demonstrated at any time by making one or more holes in a piece of lead pipe, such as might be made by a workman's "pick" or a nail driven into the pipe and then withdrawn. If water be then poured into the pipe—so long as the outlet end is open, the discharge through the side openings, if any, will be very small. The water will escape almost entirely by the open end, whilst currents of air are induced freely into the tube through the side holes by the water-flow, as may be proved by dipping the lower end into water, when a stream of bubbles will appear. The principle of this induced air-current is similar to that of the Sprengel's air-pump, Bunsen's burner, steam "injector," etc. This shows that *whilst a domestic water-tap is in flow* the pressure from the main is no protection against the sucking in of foul gases through a defect in the pipe. Water pipes through ash-middens, or exposed to the action of lime or the acids of urine will, in time, become eaten through, and thus lead to the pollution of the water they carry. In the same way the material of which "made ground" is composed may perhaps in time corrode lead pipes laid therein, and if so, lead to the contamination of the contained water with organic matter in decomposition. Possibly this may be the untraced cause of some of those cases of Enteric Fever and other communicable diseases the origin of which appears wrapped in obscurity.

### 4.—DEFECTS ON PRIVATE PREMISES CONDUCING TO POLLUTION, WASTE, INSUFFICIENCY, ETC.

Household faults of structure, etc.

Many of the causes of pollution, waste, etc., in houses and yards have been indicated in the preceding section. To attempt to give anything like a list of the faults of false economy, bad workmanship, and other causes leading to insanitary results in the matter of water distribution, would be a hopeless task. Without any intention of making a wholesale or sweeping condemnation, it cannot be gainsaid that architects, builders, and owners are, in different degrees, too often responsible for defects of arrangement, supervision, and structure; whilst gaping seams, weak joints, thin pipes, general scamping, etc., are among the faults of him whose shortcomings had become a household word long before the publication of a well-known series of papers* specially devoted to them. So long as planning and plumbing are uncontrolled, and principles remain as at present, pipes will suffer. The only remedy for this is the introduction of a system of authoritative approval on official inspection of domestic arrangements connected with water supply, such as is exercised by the Corporation with respect to private details of drainage and refuse removal.

Building plans should show plumbing details.

In every house erected in future, the deposit of a plan and other information shewing the position, material, diameter, and strength, etc., of all pipes; kinds of cisterns, with their capacities and fittings; details for flushing water-closets, and the supply of water for dietic purposes; particulars of hot water appliances, and other matters relating to the hygiene of water,—for the approval of the Sanitary Authority,—should be a matter of course.

Existing plumbing details require amendment.

The arrangements for the distribution of water in existing houses, where found sanitarily defective, should be subject to correction, the same way as for its general supply.

As to Water Company directing domestic plumbing work.

As the Water Company are interested in the provision of certain requirements as regards pipes, fittings, etc., by which the consumer also benefits, it is a question whether they should not themselves execute these works, subject to regulation by the Corporation.

## 5.—HYGIENE IN RELATION TO DOMESTIC WATER SERVICE.

Under better hygienic conditions of water service, such as have been indicated in the preceding pages, the Sanitary Authority would have ground for expecting improvment in the public health.

Large amount of disease due to want of cleanliness.

The class of ailments, appropriately termed by Mr Simon "filth diseases" is immense. Swallowed, inhaled, or absorbed through the skin, Filth is the vehicle and nidus of the germs of Typhus, Enteric Fever, Cholera, Diarrhœa. All the Zymotic Diseases have their hot-beds and strongholds in it. Scrofula is engendered and Respiratory Diseases aggravated by it. It is the parent of many sickly children.

The eradication of dirt means the extermination of disease; but this is impossible without the copious and unstinted use of water.

Within a few years several serious outbreaks of disease have been traced to defective sanitary arrangements permitting the contamination of water during its conveyance to the consumer. Happily, such an experience has not befallen Newcastle, at least during the past thirty years. It is, however, by no means improbable that many cases of disease, the origin of which has not hitherto been satisfactorily made out, have been due to contamination of water on private premises from defects, such as those indicated in the preceding pages. Among others, the frequent occurrence of the so-called "Sporadic" cases of Enteric Fever appears capable of explanation in this way.

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* "The Sins of the Plumber," by W. K. Burton, Engineer to the London Sanitary Protection Association. In the "Sanitary Record," 1882 (Feb. to July).

## 6.—LAW.

The law, dealing with the important question of water is of two kinds, varying in scope according to the aims of the respective promoters of each. The general statutes, although having for their object the public benefit, are framed and administered by persons for the most part interested only indirectly in them. The local Acts, on the contrary, are prepared by and for the benefit of the Company who are directly and personally interested. The individual interest of the consumer, which is quite different from that of the Company, is not so directly protected as it might be. Sanitary Authorities in this country, as such, have no power to deal with details of water distribution, except where they also undertake to supply the water, in which case they make arrangements for the protection of their commodity just as would be done by any other trading body.

The Acts of Parliament bearing on the subject of the water supply of Newcastle are as follows :—

General Laws relating to water.

*General Acts :—*

The Waterworks Clauses Act, 1847.
" " " " 1863.
The Gas and Water Works Facilities Act, 1870.
" " " " 1870 Amendment Act, 1873.
The Public Health Act 1875, (certain sections).
The Public Health (Water) Act, 1878, which refers primarily to the Rural Districts, but may be extended to Urban Districts.

Water Company's Acts.

*Local Acts:—*

The Acts of the Newcastle and Gateshead Water Company for the years 1845, 1853, 1863, 1866, 1870, 1876, and 1877.

Further powers required in interest of consumer.

In the foregoing statutes, both general and local, the powers granted to the Water Company appear more prominent and more definite than either their duties or their responsibilities.

The provisions of the Public Health Act are broad, but do not meet the requirements in detail. Under it an owner may be compelled to supply his house with water, if the house is without "a proper supply;" but here everything hinges upon the interpretation of the word "proper" upon which, without any previously established rule to go by, it is difficult to form a judgment, especially in the case of blocks of tenement dwellings, where distance from the supply tap is an important element for consideration.

The Corporation have no power to make bye-laws regulating the details of distribution of water after it leaves the pipes of the company—an important sanitary omission.

Newcastle, in common with English cities in general, is, in matters of water distribution, behind the principal cities of America, where the plumbing work of dwellings, like the drainage or ventilation, is executed under statutory provision, with great improvement in planning and execution as the result.

American Plumbing Laws. Registration of plumbers.

A "Plumbing Law" has been in force in New York and Brooklyn since 1882, of which the subjoined are the heads. Its object is to secure Registration of Plumbers at the Health Department, and the supervision of plumbing and drainage of dwellings, etc.

A list of registered plumbers is kept, and published yearly. All drainage and plumbing for new buildings are to be executed according to plan approved by the Board of Health, suitable drawings being submitted. Violators of the law as above are deemed guilty of misdemeanour.

In New York, rules and regulations are framed in accordance with the above law for the registration of plumbers, under which, among other provisions, blank specifications for plumbing and drainage are furnished by the Health Department to architects, etc. No part of the work is to be covered or concealed in any way until it has been examined by an Inspector of the Board of Health. Notice must be sent to the Board when the work is sufficiently advanced for such inspection.

A "plan of construction" of drainage and plumbing is issued by the Board, which describes in minute detail all approved arrangements, including position, material, calibre, and weight of pipes and drains; particulars of traps, joints, and connections, water-closets, baths, sinks, basins, vent-pipes, overflows, kitchen boilers, water service to closets, construction of cisterns and materials of tanks for drinking water, steam exhaust pipes, and many other desiderata in connection with the sanitary arrangements of houses.

The plumbing work must be able to stand proper tests, which are to be applied when required by the Inspector.

The regulations of Brooklyn provide for details of construction of drainage and plumbing, the submission of plans, describing on a blank form similar information to that required in New York, respecting "size, kind and weight of pipes, and kind of traps, closets, and fixtures to be used;" together with other requirements as at New York.

In Boston, U.S.A., regulations similar in many respects to the foregoing are in force. The penalty for each offence is not less than two, or more than fifty dollars. Not only the persons actually committing the offence are liable to penalty, "but also the employers and all other persons concerned therein."

In San Francisco, the registration of plumbers is in force, and certificates of registration are issued only after examination, and on the recommendation of a Board of Examiners appointed by the Board of Health.

Plumbing Laws for Newcastle advocated.

The example of America, in the foregoing matters, is worthy of imitation here.

In Manchester, where the Corporation owns the water-works, a list of "Authorized Plumbers" is issued from time to time. It is believed that the registration of plumbers here would have the support of the leading members of the trade.

Further Desiderata in regard of domestic water distribution.

Many of the shortcomings of the law respecting water-distribution have been indicated in the foregoing section of this Report. The following defects, among others, deserve consideration :—

*As regards the means for securing an ample and readily available supply of water for sanitary purposes on private premises, so as to give the greatest facility for its use.*

1.—There is now no regulation limit to the number of tenants to be supplied by the same tap, nor to the distance from the house at which an out-door tap shall be fixed in the case of dwellings without in-door water supply.

2.—Water-supply on each landing, and waste-pipes for dirty water on each landing or stair-head, are not compulsory in tenement property.

3.—The provision of hot-water apparatus of any kind is not compulsory.

4.—Tenement households may have their water cut off if the landlord fails to pay the rate.

5.—The use of water for sanitary purposes in houses should be *encouraged.* It is checked in the case of water-closets and baths, etc., by the extra charges for these. The limit to the quantity of water for flushing a water-closet is a sanitary mistake.

6.—Plumbers are not under registration. The vitally important sanitary work they have to do in houses is subject neither to regulation or supervision, and is often done by incompetent persons. The Corporation have no power to make bye-laws on this matter.

7.—The Sanitary Authority have no knowledge of the details of water service into houses, new or old. The quality of the work, the the material, sufficiency of the arrangements for water supply, are subject to neither question or test by the Corporation.

To deal with the subject of water-distribution thoroughly and in the broad spirit comprehended in the Town Council's resolution of two years ago, implies the consideration of this important and difficult question from many points of view; and involves, it may be, the adoption of principles to treat of which is beyond the scope of the present Report.

If the writer may be allowed to offer a few suggestions, in addition to those above made, he would recommend that the Water Company should lay all pipes and appliances for water supply in tenement dwellings. The plumbers of the town, if duly registered, might do the work under the direction of the Water Company, and subject to the approval of the Corporation ; such work to include the provision of self-closing taps, and such other details as might reasonably be required for promoting use of water for hygienic purposes and preventing waste.

It would probably also be found to the public interest if the Inspectors of Tenement Dwellings were to have the duty of supervising water apparatus, with the view of the Sanitary Authority taking proceedings against persons wilfully wasting water.

By the adoption of the different measures indicated in the preceding pages, it is confidently felt that the use of water for sanitary purposes will be greatly extended for the common good, whilst the prevention of waste will more than cover the increased consumption.

HENRY E. ARMSTRONG,
MEDICAL OFFICER OF HEALTH.

*Health Department, Town Hall,*
*Newcastle-upon-Tyne,*
*13th April, 1886.*

# City and County of Newcastle-upon-Tyne,

## 1885.

## APPENDIX A.

### TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR GENERAL TO THE MIDDLE OF THE YEAR)—153,209.

| Registration Sub-Districts and City. | Different Quarters of the Year. | Births Registered in 52 Weeks, ended 2nd January, 1886. | | | | | Deaths Registered in 52 Weeks ended 2nd Jan., 1886. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Male. | | Female. | | Total. | Male. | Female. | Total. |
| | | Legitimate. | Illegitimate. | Legitimate. | Illegitimate. | | | | |
| Westgate ... | 1st Quarter. | 285 | 19 | 296 | 11 | 611 | 204 | 198 | 402 |
| | 2nd " ... | 297 | 11 | 320 | 9 | 637 | 247 | 180 | 427 |
| | 3rd " ... | 302 | 18 | 308 | 9 | 637 | 224 | 215 | 439 |
| | 4th " ... | 306 | 15 | 299 | 9 | 629 | 175 | 176 | 351 |
| | Total ... | 1,190 | 63 | 1,223 | 38 | 2,514 | 850 | 769 | 1,619 |
| St. Andrew's | 1st Quarter. | 58 | 2 | 61 | 1 | 122 | 56 | 48 | 104 |
| | 2nd " ... | 75 | 5 | 77 | 4 | 161 | 59 | 67 | 126 |
| | 3rd " ... | 78 | 3 | 78 | 3 | 162 | 43 | 38 | 81 |
| | 4th " ... | 72 | 2 | 66 | 4 | 144 | 39 | 38 | 77 |
| | Total ... | 283 | 12 | 282 | 12 | 589 | 197 | 191 | 388 |
| St. Nicholas' | 1st Quarter. | 36 | 1 | 22 | 1 | 60 | 71 | 32 | 103 |
| | 2nd " ... | 38 | 4 | 34 | 5 | 81 | 71 | 48 | 119 |
| | 3rd " ... | 27 | — | 25 | — | 52 | 74 | 43 | 117 |
| | 4th " ... | 28 | 3 | 30 | 3 | 64 | 59 | 38 | 97 |
| | Total ... | 129 | 8 | 111 | 9 | 257 | 275 | 161 | 436 |
| All Saints' ... | 1st Quarter. | 99 | 6 | 113 | 6 | 224 | 82 | 77 | 159 |
| | 2nd " ... | 118 | 5 | 126 | 7 | 256 | 117 | 122 | 239 |
| | 3rd " ... | 112 | 7 | 115 | 9 | 243 | 75 | 91 | 166 |
| | 4th " ... | 99 | 10 | 115 | 4 | 228 | 67 | 55 | 122 |
| | Total ... | 428 | 28 | 469 | 26 | 951 | 341 | 345 | 686 |
| Byker ... | 1st Quarter. | 185 | 7 | 170 | 6 | 368 | 85 | 83 | 168 |
| | 2nd " ... | 196 | 3 | 186 | 8 | 393 | 184 | 149 | 333 |
| | 3rd " ... | 204 | 8 | 177 | 10 | 399 | 96 | 93 | 189 |
| | 4th " ... | 178 | 10 | 182 | 7 | 377 | 82 | 83 | 165 |
| | Total ... | 763 | 28 | 715 | 31 | 1,537 | 447 | 408 | 855 |
| City ... | 1st Quarter. | 663 | 35 | 662 | 25 | 1,385 | 498 | 438 | 936 |
| | 2nd " ... | 724 | 28 | 743 | 33 | 1,528 | 678 | 566 | 1,244 |
| | 3rd " ... | 723 | 36 | 703 | 31 | 1,493 | 512 | 480 | 992 |
| | 4th " ... | 683 | 40 | 692 | 27 | 1,442 | 422 | 390 | 812 |
| | Totals ... | 2,793 | 139 | 2,800 | 116 | 5,848 | 2,110 | 1,874 | 3,984 |

The Births represent a rate of 38·2, and the Deaths a rate of 26·0 per 1,000 estimated population. The increase of births over deaths is 1,864 this year, as compared with 2,523 in 1884. The increase of population of Midsummer, 1885, over that of Midsummer, 1884, is estimated by the Registrar General at 1,884 persons, and the increase of that of Midsummer, 1886, over that of 1885, at 1,908 persons.

## TABLE II.

ANNUAL DEATH-RATE PER 1,000 LIVING IN NEWCASTLE FOR EACH OF THE PAST TWO YEARS, COMPARED WITH THE AVERAGE RATE IN THE LARGE TOWNS OF THE UNITED KINGDOM.

| | 1884. | | 1885. | |
|---|---|---|---|---|
| | Annual Average in 28 Towns. | Annual Rate in Newcastle. | Annual Average in 28 Towns. | Annual Rate in Newcastle. |
| 1st Quarter .................. | 21·1 | 22·9 | 22·7 | *26·5 |
| 2nd ,, .................. | 20·8 | 20·3 | 20·6 | 32·5 |
| 3rd ,, .................. | 22·8 | 24·3 | 18·8 | †24·0 |
| 4th ,, .................. | 21·7 | 26·3 | 20·0 | 21·2 |
| Annual Rate ......... | 21·6 | 23·5 | 20·5 | 26·0 |

* 12 weeks. † 14 weeks.

## TABLE III.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | West-gate. | * St. Andrew's. | * St. Nicholas' | All Saints'. | Byker. | City. |
| I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES. | | | | | | |
| 1.—*Miasmatic Diseases.* | | | | | | |
| Small-pox ... ... ... ... | ... | 1 | ... | 2 | ... | 3 |
| Measles ... ... ... ... | 114 | 24 | 31 | 68 | 122 | 359 |
| Scarlet Fever (Scarlatina) ... | 29 | 7 | 4 | 17 | 26 | 83 |
| Diphtheria ... ... ... | 8 | 2 | 2 | 5 | 9 | 26 |
| Whooping Cough ... ... ... | 19 | 2 | 5 | 8 | 15 | 49 |
| Typhus Fever ... ... ... | ... | 2 | 3 | 1 | 1 | 7 |
| Enteric or Typhoid Fever ... | 28 | 6 | 12 | 6 | 4 | 56 |
| Simple Continued and Ill-defined Fever ... ... ... ... | 2 | ... | ... | 2 | ... | 4 |
| Other Miasmatic Diseases ... | 1 | ... | 1 | ... | ... | 2 |
| 2.—*Diarrhœal Diseases.* | | | | | | |
| Diarrhœa, Dysentery ... ... | 44 | 8 | 5 | 25 | 31 | 113 |
| 5.—*Venereal Diseases.* | | | | | | |
| Syphilis ... ... ... ... | 9 | 1 | 5 | 6 | 5 | 26 |
| Gonorrhœa, Stricture of Urethra | ... | ... | 1 | ... | ... | 1 |
| Carried forward ... ... | 254 | 53 | 69 | 140 | 213 | 729 |

* The number of Deaths in St. Nicholas' Sub-District is increased by 172 in the Infirmary and 15 in the Fever Hospital, 69 of the former came to that Institution from beyond the City, and in 11 other cases residences were unknown. The number in St. Andrew's Sub-District is increased by 1 in the Small-pox Hospital.

## TABLE III.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | West-gate. | St. Andrew's. | St. Nicholas'. | All Saints'. | Byker. | City. |
| Brought forward | 254 | 53 | 69 | 140 | 213 | 729 |
| 6.—*Septic Diseases.* | | | | | | |
| Erysipelas | 8 | 1 | 4 | ... | 3 | 16 |
| Pyæmia, Septicæmia | ... | ... | 2 | ... | 1 | 3 |
| Puerperal Fever | ... | ... | 1 | 1 | 2 | 4 |
| II.—PARASITIC DISEASES. | | | | | | |
| Thrush | 1 | 1 | 1 | 1 | 2 | 6 |
| III.—DIETIC DISEASES. | | | | | | |
| Starvation & Want of Breast Milk | 13 | ... | ... | 2 | ... | 15 |
| Chronic Alcoholism, Delirium Tremens | 4 | 1 | 4 | 1 | 4 | 14 |
| IV.—CONSTITUTIONAL DISEASES. | | | | | | |
| Rheumatic Fever and Rheumatism of the Heart | 3 | ... | 1 | 1 | 1 | 6 |
| Rheumatism | 2 | 3 | ... | ... | 4 | 9 |
| Gout | ... | ... | ... | ... | 1 | 1 |
| Rickets | 1 | ... | ... | 1 | ... | 2 |
| Cancer, Malignant Disease | 26 | 9 | 10 | 7 | 12 | 64 |
| Tabes Mesenterica | 23 | 5 | 4 | 5 | 2 | 39 |
| Tubercular Meningitis, Hydrocephalus | 26 | 5 | 4 | 10 | 10 | 55 |
| Phthisis | 163 | 39 | 43 | 53 | 70 | 368 |
| Other Tubercular and Scrofulous Diseases | 15 | 6 | 7 | 6 | 10 | 44 |
| Purpura, Hæmorrhagic Diathesis | ... | ... | ... | ... | 1 | 1 |
| Anæmia, Chlorosis, Leucocythæmia | 1 | 1 | 2 | 1 | 1 | 6 |
| Glycosuria, Diabetes Mellitus | 2 | 1 | ... | ... | ... | 3 |
| Other Constitutional Diseases | 1 | ... | 1 | ... | ... | 2 |
| V.—DEVELOPMENTAL DISEASES. | | | | | | |
| Premature Birth | 49 | 2 | 3 | 8 | 28 | 90 |
| Atelectasis | 2 | 1 | ... | ... | ... | 3 |
| Congenital Malformations | 3 | 1 | 1 | 2 | 3 | 10 |
| Old Age | 120 | 19 | 6 | 28 | 27 | 200 |
| VI.—LOCAL DISEASES. | | | | | | |
| 1.—*Diseases of Nervous System.* | | | | | | |
| Inflammation of Brain or Membranes | 27 | 7 | 6 | 14 | 18 | 72 |
| Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis | 77 | 13 | 9 | 17 | 23 | 139 |
| Carried forward | 821 | 168 | 178 | 298 | 436 | 1,901 |

## TABLE III.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | West-gate. | St. Andrew's. | St. Nicholas'. | All Saints'. | Byker. | City. |
| Brought forward ... ... | 821 | 168 | 178 | 298 | 436 | 1,901 |
| 1.—*Nervous System.—Continued.* | | | | | | |
| Insanity, General Paralysis of the Insane ... ... ... ... | 1 | ... | ... | ... | 1 | 2 |
| Epilepsy ... ... ... ... | 4 | 1 | 1 | 1 | ... | 7 |
| Convulsions ... ... ... | 55 | 16 | 20 | 46 | 30 | 167 |
| Laryngismus Stridulus (Spasm of Glottis) ... ... ... ... | 1 | ... | ... | 1 | ... | 2 |
| Paralysis Agitans, Paraplegia, Disease of Spinal Cord ... | 9 | 3 | ... | 7 | 3 | 22 |
| Other Diseases of Nervous System | 15 | 3 | 3 | 3 | 8 | 32 |
| 2.—*Diseases of Organs of Special Sense.* | | | | | | |
| (*e.g.*, Ear, Eyes, and Nose) ... | ... | ... | ... | 1 | ... | 1 |
| 3.—*Diseases of Circulatory System.* | | | | | | |
| Endocarditis, Valvular Diseases of Heart ... ... ... ... | 5 | 8 | 1 | 1 | 3 | 18 |
| Pericarditis ... ... ... | 1 | ... | 1 | ... | 1 | 3 |
| Other Diseases of Heart ... ... | 74 | 19 | 23 | 29 | 45 | 190 |
| Aneurism ... ... ... ... | 4 | ... | 2 | 4 | 2 | 12 |
| Other Diseases of Blood Vessels... | 2 | ... | 1 | ... | ... | 3 |
| 4.—*Diseases of Respiratory System.* | | | | | | |
| Croup ... ... ... ... | 14 | 1 | 2 | 1 | 4 | 22 |
| Laryngitis ... ... ... | 2 | 2 | 2 | 6 | 3 | 15 |
| Bronchitis ... ... ... ... | 137 | 36 | 18 | 81 | 52 | 324 |
| Pneumonia... ... ... ... | 100 | 29 | 22 | 46 | 57 | 254 |
| Pleurisy ... ... ... ... | 4 | 1 | 6 | ... | 3 | 14 |
| Emphysema, Asthma ... .. | 6 | 2 | 2 | 1 | 2 | 13 |
| Other Diseases of Respiratory System ... ... ... ... | 21 | 8 | 3 | 3 | 9 | 44 |
| 5.—*Diseases of Digestive System.* | | | | | | |
| Dentition ... ... ... ... | 24 | 3 | 2 | 2 | 13 | 44 |
| Tonsillitis, &c. ... ... ... | 1 | 1 | ... | 2 | 1 | 5 |
| Diseases of Stomach ... ... | 5 | 7 | 3 | 5 | 7 | 27 |
| Enteritis ... ... ... ... | 10 | 3 | 1 | ... | 1 | 15 |
| Peritonitis ... ... ... ... | 11 | 1 | 2 | 6 | 7 | 27 |
| Obstructive Diseases of Intestine | 5 | 1 | 5 | 1 | 2 | 14 |
| Cirrhosis of Liver... ... ... | 5 | 2 | 5 | 4 | 4 | 20 |
| Jaundice & other Diseases of Liver | 15 | 6 | 2 | 5 | 3 | 31 |
| Other Diseases of Digestive System | 2 | ... | 2 | ... | 4 | 8 |
| 6.—*Diseases of Lymphatic System.* | | | | | | |
| (*e.g.*, of Lymphatics and of Spleen) | 1 | 1 | 1 | ... | ... | 3 |
| 8.—*Diseases of Urinary System.* | | | | | | |
| Nephritis ... ... ... ... | 4 | ... | 1 | 3 | 3 | 11 |
| Bright's Disease, Albuminuria ... | 14 | 3 | 4 | 2 | 8 | 31 |
| Disease of Bladder and of Prostate | 2 | 1 | 2 | 2 | 1 | 8 |
| Other Diseases of Urinary System | 3 | 2 | 13 | 1 | 1 | 20 |
| 9.—*Diseases of Re-Productive System.* | | | | | | |
| (A) Of Organs of Generation. | | | | | | |
| Female Organs ... ... ... | 2 | ... | 3 | ... | ... | 5 |
| Carried forward ... ... | 1,380 | 328 | 331 | 562 | 714 | 3,315 |

## TABLE III.—CONTINUED.

### RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | West-gate. | St. Andrew's. | St. Nicholas'. | All Saints'. | Byker. | City. |
| Brought forward ... ... | 1,380 | 328 | 331 | 562 | 714 | 3,315 |
| 9.—*Diseases of Re-Productive System.—Continued.* | | | | | | |
| (B) Of Parturition. | | | | | | |
| Abortion, Miscarriage ... ... | ... | ... | ... | 1 | ... | 1 |
| Puerperal Convulsions ... ... | 1 | ... | ... | 1 | 2 | 4 |
| Placenta Prævia, Flooding ... | 1 | 1 | .. | ... | ... | 2 |
| Other Accidents of Childbirth ... | 5 | 2 | 1 | 6 | 6 | 20 |
| 10.-*Diseases of Locomotive System.* | | | | | | |
| Caries, Necrosis ... ... ... | 5 | 1 | 2 | ... | 1 | 9 |
| Arthritis, Ostitis, Periostitis ... | 1 | 1 | ... | 1 | ... | 3 |
| Other Diseases of Locomotive System ... ... ... ... | 3 | 1 | 1 | 1 | 1 | 7 |
| 11.—*Diseases of Integumentary System.* | | | | | | |
| (*e.g.*, Carbuncle, Phlegmon, Cellulitis) ... ... ... ... | ... | ... | 2 | ... | 2 | 4 |
| VII.—VIOLENCE. | | | | | | |
| 1.—*Accident. Negligence, &c.* | | | | | | |
| Fracture and Contusion ... ... | 10 | 1 | 21 | 2 | 1 | 35 |
| Burn and Scald .. ... ... | 6 | ... | 3 | ... | 1 | 10 |
| Poison ... ... ... ... | 1 | ... | 1 | ... | 1 | 3 |
| Drowning ... ... ... ... | 2 | ... | 4 | 1 | ... | 7 |
| Suffocation... ... ... ... | 4 | 3 | ... | 1 | 2 | 10 |
| Hernia ... ... ... ... | 3 | ... | 3 | ... | ... | 6 |
| Deaths consequent on Surgical Operation ... ... ... | ... | ... | 4 | ... | ... | 4 |
| Otherwise ... ... ... ... | ... | ... | 1 | ... | 1 | 2 |
| 2.—*Homicide.* | | | | | | |
| Murder and Manslaughter ... | 1 | ... | 1 | ... | ... | 2 |
| 3.—*Suicide.* | | | | | | |
| Gunshot Wound ... ... ... | ... | ... | 1 | ... | ... | 1 |
| Cut, Stab ... ... .. ... | 2 | ... | ... | ... | ... | 2 |
| Poison ... ... ... ... | 1 | 1 | 3 | 1 | 1 | 7 |
| Drowning ... ... ... ... | 1 | ... | 1 | ... | ... | 2 |
| Hanging ... ... ... ... | 3 | ... | ... | ... | 1 | 4 |
| VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES. | | | | | | |
| Dropsy ... ... ... ... | 5 | 1 | ... | 3 | 2 | 11 |
| Debility, Atrophy, Inanition ... | 116 | 24 | 15 | 59 | 77 | 291 |
| Mortification ... ... ... | 6 | 1 | 4 | ... | 3 | 14 |
| Tumour ... ... ... ... | 5 | 1 | 7 | 1 | 3 | 17 |
| Abscess ... ... ... ... | 5 | 1 | 2 | 2 | 3 | 13 |
| Hœmorrhage ... ... ... | 1 | 2 | ... | ... | 1 | 4 |
| Sudden Death (Cause not ascertained) ... ... ... ... | 1 | 1 | 2 | ... | ... | 4 |
| Found Dead (Cause not stated) ... | 6 | 5 | 11 | 10 | 9 | 41 |
| Other Causes not specified or ill-defined ... ... ... ... | 44 | 13 | 15 | 34 | 23 | 129 |
| TOTALS ... ... | 1,619 | 388 | 436 | 686 | 855 | 3,984 |

# CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.—1885.

## SUMMARY OF TABLE III.

Showing also the Incidence of Mortality from the Different Orders of Disease, &c., in the respective Quarters of the Year.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | City. | | | | | Westgate. | | | | | St. Andrew's. | | | | | St. Nicholas'. | | | | | All Saints'. | | | | | Byker. | | | | |
| | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. | Total. |
| I.—Specific, Febrile, or Zymotic Diseases | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Miasmatic Diseases ... ... ... | 123 | 272 | 106 | 88 | 589 | 43 | 65 | 54 | 39 | 201 | 16 | 21 | 3 | 4 | 44 | 23 | 17 | 10 | 8 | 58 | 14 | 55 | 26 | 14 | 109 | 27 | 114 | 13 | 23 | 177 |
| 2. Diarrhœal Diseases ... ... ... | 10 | 19 | 72 | 12 | 113 | 4 | 7 | 29 | 4 | 44 | 1 | 2 | 2 | 3 | 8 | ... | 1 | 3 | 1 | 5 | 3 | 4 | 17 | 1 | 25 | 2 | 5 | 21 | 3 | 31 |
| 5. Venereal Diseases ... ... ... | 8 | 7 | 6 | 6 | 27 | 1 | 3 | 4 | 1 | 9 | 1 | ... | ... | ... | 1 | 2 | 2 | 1 | 1 | 6 | 1 | 2 | ... | 3 | 6 | 3 | ... | 1 | 1 | 5 |
| 6. Septic Diseases ... ... ... | 4 | 6 | 6 | 7 | 23 | 3 | 1 | 3 | 1 | 8 | ... | ... | ... | 1 | 1 | 1 | 3 | 1 | 2 | 7 | ... | 1 | ... | ... | 1 | ... | 1 | 2 | 3 | 6 |
| II.—Parasitic Diseases ... ... ... | 2 | 2 | 1 | 1 | 6 | 1 | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 | 1 | ... | ... | ... | 1 | ... | 1 | ... | ... | 1 | ... | 1 | 1 | ... | 2 |
| III.—Dietic Diseases ... ... ... | 9 | 4 | 12 | 4 | 29 | 6 | 3 | 5 | 3 | 17 | ... | ... | 1 | ... | 1 | 1 | ... | 2 | 1 | 4 | 2 | ... | 1 | ... | 3 | ... | 1 | 3 | ... | 4 |
| IV.—Constitutional Diseases ... ... | 125 | 196 | 167 | 112 | 600 | 55 | 78 | 77 | 53 | 263 | 17 | 21 | 19 | 12 | 69 | 8 | 28 | 23 | 13 | 72 | 18 | 31 | 25 | 10 | 84 | 27 | 38 | 23 | 24 | 112 |
| V.—Developmental Diseases ... ... | 84 | 78 | 77 | 64 | 303 | 54 | 40 | 46 | 34 | 174 | 8 | 9 | 3 | 3 | 23 | 1 | 1 | 4 | 4 | 10 | 10 | 13 | 9 | 6 | 38 | 11 | 15 | 15 | 17 | 58 |
| VI.—Local Diseases— | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Diseases of Nervous System ... | 106 | 138 | 94 | 105 | 443 | 47 | 55 | 36 | 51 | 189 | 10 | 15 | 4 | 14 | 43 | 6 | 10 | 11 | 12 | 39 | 25 | 23 | 24 | 17 | 89 | 18 | 35 | 19 | 11 | 83 |
| 2. Diseases of Organs of Special Sense | 1 | ... | ... | ... | 1 | ... | .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | .. | ... | ... | 1 | ... | ... | ... | ... | ... |
| 3. Diseases of Circulatory System ... | 59 | 62 | 47 | 58 | 226 | 25 | 17 | 19 | 25 | 86 | 7 | 10 | 5 | 5 | 27 | 7 | 7 | 7 | 7 | 28 | 10 | 12 | 5 | 7 | 34 | 10 | 16 | 11 | 14 | 51 |
| 4. Diseases of Respiratory System ... | 173 | 207 | 148 | 158 | 686 | 75 | 72 | 63 | 74 | 284 | 19 | 30 | 13 | 17 | 79 | 12 | 14 | 19 | 10 | 55 | 33 | 43 | 30 | 32 | 138 | 34 | 48 | 23 | 25 | 130 |
| 5. Diseases of Digestive System ... | 52 | 47 | 57 | 35 | 191 | 24 | 18 | 20 | 16 | 78 | 7 | 3 | 11 | 3 | 24 | 6 | 5 | 7 | 4 | 22 | 6 | 10 | 5 | 4 | 25 | 9 | 11 | 14 | 8 | 42 |
| 6. Diseases of Lymphatic System ... | 2 | ... | 1 | ... | 3 | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | 1 | 1 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 8. Diseases of Urinary System ... | 19 | 21 | 10 | 20 | 70 | 5 | 9 | 5 | 4 | 23 | 2 | ... | 2 | 2 | 6 | 7 | 8 | 1 | 4 | 20 | 2 | 1 | 1 | 4 | 8 | 3 | 3 | 1 | 6 | 13 |
| 9. Diseases of Re-Productive System— | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (A) Of Organs of Generation ... | ... | 1 | 3 | 1 | 5 | ... | ... | 2 | ... | 2 | ... | ... | ... | ... | ... | ... | 1 | 1 | 1 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| (B) Of Parturition ... ... | 7 | 4 | 10 | 6 | 27 | 3 | ... | 2 | 2 | 7 | ... | 1 | 1 | 1 | 3 | 1 | ... | ... | ... | 1 | 2 | ... | 3 | 3 | 8 | 1 | 3 | 4 | ... | 8 |
| 10. Diseases of Locomotive System ... | 2 | 5 | 7 | 5 | 19 | 1 | 1 | 4 | 3 | 9 | ... | 1 | 1 | 1 | 3 | 1 | ... | 1 | 1 | 3 | ... | 2 | ... | ... | 2 | ... | 1 | 1 | ... | 2 |
| 11. Diseases of Integumentary System | .. | 1 | ... | 3 | 4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | 2 | 2 | ... | ... | ... | ... | ... | ... | 1 | ... | 1 | 2 |
| VII.—Violence— | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Accident, Negligence, &c. ... ... | 16 | 12 | 31 | 18 | 77 | 6 | 7 | 7 | 6 | 26 | 2 | ... | 2 | ... | 4 | 7 | 5 | 14 | 11 | 37 | ... | ... | 3 | 1 | 4 | 1 | ... | 5 | ... | 6 |
| 2. Homicide ... ... ... ... | ... | 1 | 1 | ... | 2 | ... | ... | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3. Suicide ... ... ... ... | 2 | 6 | 4 | 4 | 16 | 1 | 3 | 2 | 1 | 7 | ... | 1 | ... | ... | 1 | 1 | 1 | 1 | 2 | 5 | ... | ... | 1 | ... | 1 | ... | 1 | ... | 1 | 2 |
| VIII.—Deaths from Ill-defined and not Specified Causes... ... ... | 132 | 155 | 132 | 105 | 524 | 48 | 48 | 59 | 34 | 189 | 13 | 12 | 14 | 10 | 49 | 17 | 15 | 11 | 13 | 56 | 32 | 41 | 16 | 20 | 109 | 22 | 39 | 32 | 28 | 121 |
| Total ... ... ... | 936 | 1244 | 992 | 812 | 3984 | 402 | 427 | 439 | 351 | 1619 | 104 | 126 | 81 | 77 | 388 | 103 | 119 | 117 | 97 | 436 | 159 | 239 | 166 | 122 | 686 | 168 | 333 | 189 | 165 | 855 |

# TABLE IV.

THE FOLLOWING TABLE SHOWS THE WEEKLY NUMBERS OF DEATHS FROM CERTAIN DISEASES, LIABLE TO FLUCTUATION, DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886 :—

| WEEK ENDED. | Pulmonary Consumption. | Diseases of Respiratory Organs other than Consumption. | SEVEN CHIEF ZYMOTIC DISEASES. | | | | | | | | | Total of Seven Chief Zymotic Diseases. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Small-pox. | Measles. | Scarlet Fever. | Diphtheria. | Whooping Cough. | Fever. | | | Diarrhœa. | |
| | | | | | | | | Typhus. | Enteric. | Continued. | | |
| Jan. 10 ... | 5 | 16 | 1 | 7 | 2 | 1 | ... | ... | 1 | ... | ... | 12 |
| ,, 17 ... | 6 | 8 | ... | 2 | 1 | ... | 1 | 1 | 1 | ... | 1 | 7 |
| ,, 24 ... | 6 | 6 | ... | 1 | 4 | 1 | 2 | ... | 1 | ... | ... | 9 |
| ,, 31 ... | 5 | 11 | ... | 1 | 5 | ... | 1 | ... | ... | 1 | ... | 8 |
| Feb. 7 ... | 8 | 12 | ... | 1 | 2 | ... | ... | ... | ... | 1 | 2 | 6 |
| ,, 14 ... | 6 | 18 | ... | 1 | 4 | 1 | ... | ... | ... | ... | 1 | 7 |
| ,, 21 ... | 6 | 10 | ... | 5 | 3 | ... | ... | ... | 1 | ... | 1 | 10 |
| ,, 28 ... | 11 | 23 | ... | 3 | 1 | 1 | 2 | ... | 1 | ... | 1 | 9 |
| Mar. 7 ... | 8 | 19 | ... | 5 | 2 | 2 | ... | ... | 2 | 1 | ... | 12 |
| ,, 14 ... | 4 | 22 | ... | 4 | 1 | ... | 4 | ... | 2 | ... | 1 | 12 |
| ,, 21 ... | 7 | 15 | 1 | 10 | 1 | ... | 1 | ... | ... | ... | 2 | 15 |
| ,, 28 ... | 6 | 13 | 1 | 16 | 1 | 1 | 2 | ... | 3 | ... | 1 | 25 |
| April 4 ... | 13 | 15 | ... | 9 | 3 | ... | 5 | 1 | 2 | ... | 2 | 22 |
| ,, 11 .. | 14 | 20 | ... | 23 | 1 | ... | 2 | ... | ... | ... | 2 | 28 |
| ,, 18 ... | 6 | 15 | ... | 16 | 2 | ... | ... | ... | 2 | 1 | 2 | 23 |
| ,, 25 ... | 8 | 17 | ... | 27 | 1 | 2 | ... | ... | ... | ... | 3 | 33 |
| May 2 ... | 12 | 17 | ... | 16 | 3 | ... | 1 | ... | ... | ... | 2 | 22 |
| ,, 9 ... | 11 | 14 | ... | 25 | 2 | ... | 1 | ... | ... | ... | ... | 28 |
| ,, 16 ... | 9 | 15 | ... | 12 | 3 | ... | ... | ... | 1 | ... | 1 | 17 |
| ,, 23 ... | 5 | 14 | ... | 18 | 2 | 1 | 2 | 1 | 1 | ... | 2 | 27 |
| ,, 30 ... | 11 | 13 | ... | 10 | 2 | ... | 2 | ... | 1 | ... | 2 | 17 |
| June 6 ... | 8 | 14 | ... | 12 | 2 | 2 | 3 | 1 | 3 | ... | 1 | 24 |
| ,, 13 ... | 8 | 25 | ... | 13 | 1 | ... | 1 | ... | 2 | ... | ... | 17 |
| ,, 20 ... | 5 | 11 | ... | 15 | 2 | ... | 2 | ... | ... | ... | ... | 19 |
| ,, 27 ... | 11 | 17 | ... | 8 | ... | 1 | ... | 1 | 1 | ... | 2 | 13 |
| July 4 ... | 10 | 11 | ... | 7 | 1 | .. | 2 | ... | ... | .. | 1 | 11 |
| ,, 11 ... | 8 | 18 | ... | 2 | 3 | ... | 1 | ... | 1 | .. | 2 | 9 |
| ,, 18 ... | 9 | 9 | ... | 10 | 2 | ... | 1 | ... | 3 | ... | 1 | 17 |
| ,, 25 ... | 8 | 10 | ... | 11 | 4 | ... | 2 | ... | 1 | ... | 4 | 22 |
| Aug. 1 ... | 7 | 13 | ... | 5 | 1 | ... | 1 | ... | ... | ... | 8 | 15 |
| ,, 8 ... | 4 | 9 | ... | 5 | ... | ... | 1 | ... | ... | ... | 9 | 15 |
| ,, 15 ... | 9 | 8 | ... | 5 | 1 | ... | ... | ... | ... | ... | 16 | 22 |
| ,, 22 ... | 6 | 12 | ... | 5 | ... | ... | ... | 1 | 1 | ... | 8 | 15 |
| ,, 29 ... | 5 | 10 | ... | 2 | ... | ... | ... | ... | 2 | ... | 10 | 14 |
| Sept. 5 ... | 7 | 9 | ... | 2 | 3 | ... | ... | ... | ... | ... | 6 | 11 |
| ,, 12 ... | 9 | 12 | ... | 4 | 2 | 1 | ... | ... | 1 | ... | 2 | 10 |
| ,, 19 ... | 10 | 10 | ... | 1 | ... | 3 | 1 | ... | 1 | ... | 1 | 7 |
| ,, 26 ... | 9 | 5 | ... | ... | ... | ... | ... | ... | 2 | ... | 3 | 5 |
| Oct. 3 ... | 6 | 14 | ... | 2 | 1 | 1 | ... | ... | ... | ... | 1 | 5 |
| ,, 10 ... | 2 | 10 | ... | 2 | ... | 1 | ... | ... | 1 | ... | 2 | 6 |
| ,, 17 ... | 4 | 8 | ... | 5 | 2 | ... | 1 | ... | 3 | ... | 1 | 12 |
| ,, 24 ... | 6 | 11 | ... | 6 | 3 | 1 | 1 | 1 | ... | ... | ... | 12 |
| ,, 31 ... | 5 | 10 | ... | 8 | 2 | ... | ... | ... | 1 | ... | ... | 11 |
| Nov. 7 ... | 6 | 17 | ... | 8 | ... | ... | ... | ... | 2 | ... | 2 | 12 |
| ,, 14 ... | 4 | 8 | ... | 1 | 1 | ... | 1 | .. | 6 | ... | ... | 9 |
| ,, 21 ... | 5 | 18 | ... | 1 | ... | 1 | ... | ... | 1 | ... | ... | 3 |
| ,, 28 ... | 5 | 13 | ... | 3 | 1 | 1 | ... | ... | 3 | .. | ... | 8 |
| Dec. 5 ... | 4 | 7 | ... | ... | 1 | 1 | ... | ... | ... | ... | 2 | 4 |
| ,, 12 ... | 3 | 18 | ... | ... | 1 | ... | 1 | ... | 2 | ... | 1 | 5 |
| ,, 19 ... | 5 | 13 | ... | 3 | ... | 1 | ... | ... | ... | ... | 3 | 7 |
| ,, 26 ... | 6 | 12 | ... | 1 | 2 | 1 | 3 | ... | ... | ... | ... | 7 |
| Jan. 2 ... | 7 | 13 | ... | ... | 1 | 1 | 1 | ... | ... | ... | 1 | 4 |
| Totals... | 368 | 688 | 3 | 359 | 83 | 26 | 49 | 7 | 56 | 4 | 113 | 700 |

## TABLE V.—Ages at Death.

| Periods. | Registration Sub-Districts. | | | | | |
|---|---|---|---|---|---|---|
| | Westgate. | St. Andrew's. | St. Nicholas'. | All Saints'. | Byker. | Total in City. |
| Under 1 Year ... ... | 410 | 83 | 57 | 188 | 269 | 1,007 |
| 1 Year and under 5 Years... | 300 | 64 | 70 | 188 | 212 | 834 |
| 5 Years „ 20 „ ... | 129 | 32 | 43 | 62 | 75 | 341 |
| 20 „ „ 40 „ ... | 209 | 56 | 116 | 64 | 88 | 533 |
| 40 „ „ 60 „ ... | 246 | 62 | 102 | 86 | 107 | 603 |
| 60 „ „ 80 „ ... | 261 | 73 | 43 | 85 | 91 | 553 |
| 80 „ and upwards ... | 64 | 18 | 5 | 13 | 12 | 112 |
| Total (all ages) dying during 52 weeks ended 2nd Jan., 1886 ... | 1,619 | 388 | 436 | 686 | 855* | 3,984* |

* Including one, age not known.

## TABLE VI.

### Births and Deaths in the Different Quarters of the Years 1884, 1885.

| | Births. | | Deaths. | |
|---|---|---|---|---|
| | 1884. | 1885. | 1884. | 1885. |
| *First Quarter ... ... ... | 1,469 | 1,385 | 865 | 936 |
| Second „ ... ... ... | 1,480 | 1,528 | 767 | 1,244 |
| †Third „ ... ... ... | 1,569 | 1,493 | 921 | 992 |
| Fourth „ ... ... ... | 1,554 | 1,442 | 996 | 812 |
| Totals ... ... ... ... | 6,072 | 5,848 | 3,549 | 3,984 |

## TABLE VII.

### Deaths of Children under 1 Year and Persons over 60 Years in 1882, 1883, 1884, 1885.

| | Number of Deaths. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Under 1 Year of Age. | | | | Over 60 Years. | | | |
| | 1882. | 1883. | 1884. | 1885. | 1882. | 1883. | 1884. | 1885. |
| *First Quarter ... ... | 190 | 215 | 220 | 228 | 167 | 191 | 158 | 178 |
| Second „ ... ... | 210 | 198 | 169 | 301 | 141 | 141 | 151 | 179 |
| †Third „ ... ... | 320 | 277 | 317 | 277 | 126 | 154 | 158 | 152 |
| Fourth „ ... ... | 194 | 229 | 243 | 201 | 188 | 181 | 184 | 156 |
| Totals ... ... | 914 | 919 | 949 | 1,007 | 622 | 667 | 651 | 665 |

* 12 Weeks. † 14 Weeks.

# TABLE VIII.

## DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED JANUARY 2ND, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | Total in City. | West-gate. | St. Andrew's. | St. Nicholas'. | All Saints'. | Byker. |
| I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES. | | | | | | |
| 1.—*Miasmatic Diseases.* | | | | | | |
| Small-pox ... ... ... ... | 1 | ... | ... | ... | 1 | ... |
| Measles ... ... ... ... | 78 | 24 | 6 | 5 | 16 | 27 |
| Scarlet Fever (Scarlatina) ... | 8 | 4 | ... | ... | 1 | 3 |
| Diphtheria ... ... ... ... | 1 | ... | ... | 1 | ... | ... |
| Whooping Cough ... ... ... | 23 | 10 | ... | ... | 4 | 9 |
| Other Miasmatic Diseases ... | 1 | 1 | ... | ... | ... | ... |
| 2.—*Diarrhœal Diseases.* | | | | | | |
| Diarrhœa, Dysentery ... ... | 68 | 20 | 7 | 2 | 16 | 23 |
| 5.—*Venereal Diseases.* | | | | | | |
| Syphilis ... ... ... ... | 17 | 7 | 1 | ... | 4 | 5 |
| 6.—*Septic Diseases.* | | | | | | |
| Erysipelas ... ... ... ... | 4 | 2 | ... | 1 | ... | 1 |
| II.—PARASITIC DISEASES. | | | | | | |
| Thrush ... ... ... ... | 5 | 1 | 1 | ... | 1 | 2 |
| III.—DIETIC DISEASES. | | | | | | |
| Starvation and Want of Breast Milk ... ... ... ... | 15 | 13 | ... | ... | 2 | ... |
| IV.—CONSTITUTIONAL DISEASES. | | | | | | |
| Rickets ... ... ... ... | 2 | 1 | ... | ... | 1 | ... |
| Tabes Mesenterica... ... ... | 17 | 10 | 3 | 2 | 2 | ... |
| Tubercular Meningitis, Hydrocephalus ... ... ... ... | 17 | 8 | 1 | ... | 4 | 4 |
| Phthisis ... ... ... ... | 2 | ... | ... | 1 | ... | 1 |
| Other Tubercular and Scrofulous Diseases ... ... ... ... | 8 | 4 | 1 | ... | 2 | 1 |
| V.—DEVELOPMENTAL DISEASES. | | | | | | |
| Premature Birth ... ... ... | 90 | 49 | 2 | 3 | 8 | 28 |
| Atelectasis ... ... ... ... | 3 | 2 | 1 | ... | ... | ... |
| Congenital Malformations ... | 10 | 3 | 1 | 1 | 2 | 3 |
| VI.—LOCAL DISEASES. | | | | | | |
| 1.—*Diseases of Nervous System.* | | | | | | |
| Inflammation of Brain or Membranes ... ... ... ... | 14 | 6 | 2 | ... | 2 | 4 |
| Convulsions ... ... ... | 129 | 44 | 11 | 17 | 36 | 21 |
| Other Diseases of Nervous System | 5 | 2 | ... | ... | ... | 3 |
| 4.—*Diseases of Respiratory System* | | | | | | |
| Croup ... ... ... ... | 1 | 1 | ... | ... | ... | ... |
| Laryngitis ... ... ... ... | 1 | ... | ... | ... | ... | 1 |
| Bronchitis ... ... ... ... | 82 | 37 | 5 | 3 | 20 | 17 |
| Pneumonia ... ... ... | 48 | 17 | 5 | 2 | 9 | 15 |
| Other Diseases of Respiratory System ... ... ... ... | 6 | 1 | ... | 1 | ... | 4 |
| Carried forward ... ... | 656 | 267 | 47 | 39 | 131 | 172 |

## TABLE VIII.—CONTINUED.

### DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED JANUARY 2ND, 1886.

| CAUSE OF DEATH. | REGISTRATION SUB-DISTRICTS. | | | | | |
|---|---|---|---|---|---|---|
| | Total in City. | West-gate.* | St. Andrew's | St. Nicholas'. | All Saints'. | Byker. |
| Brought forward ... ... | 656 | 267 | 47 | 39 | 131 | 172 |
| 5.—*Diseases of Digestive System.* | | | | | | |
| Dentition ... ... ... ... | 29 | 15 | 3 | 2 | 1 | 8 |
| Tonsillitis, &c. ... ... ... | 1 | 1 | ... | ... | ... | ... |
| Diseases of Stomach ... ... | 4 | 1 | 1 | ... | ... | 2 |
| Enteritis ... ... ... ... | 6 | 6 | ... | ... | ... | ... |
| Peritonitis ... ... ... ... | 3 | 1 | ... | ... | ... | 2 |
| Obstructive Diseases of Intestine | 4 | 1 | 1 | ... | ... | 2 |
| Other Diseases of Digestive System | 3 | 2 | ... | ... | .. | 1 |
| 8.—*Diseases of Urinary System.* | | | | | | |
| Nephritis ... ... ... ... | 2 | ... | ... | ... | 2 | ... |
| 9.—*Diseases of Re-productive System.* | | | | | | |
| (B) *Of Parturition.* | | | | | | |
| Accidents of Childbirth ... ... | 3 | ... | 1 | ... | 1 | 1 |
| 11.—*Diseases of Integumentary System.* | | | | | | |
| (*e.g.*, Carbuncle, Phlegmon, Cellulitis) ... ... ... ... | 2 | ... | ... | ... | ... | 2 |
| VII.—VIOLENCE. | | | | | | |
| 1.—*Accident, Negligence, &c.* | | | | | | |
| Burn and Scald ... ... ... | 1 | 1 | ... | ... | ... | ... |
| Suffocation... ... ... ... | 9 | 3 | 3 | ... | 1 | 2 |
| Deaths consequent on Surgical Operation... ... ... ... | 1 | ... | ... | 1 | ... | ... |
| VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES. | | | | | | |
| Dropsy ... ... ... ... | 1 | ... | 1 | ... | ... | ... |
| Debility, Atrophy, Inanition ... | 217 | 87 | 16 | 10 | 40 | 64 |
| Mortification ... .. ... | 1 | ... | ... | ... | ... | 1 |
| Abscess ... ... ... ... | 5 | 1 | ... | 1 | 1 | 2 |
| Hœmorrhage ... ... ... | 1 | 1 | ... | ... | ... | ... |
| Sudden Death (cause not ascertained) ... ... ... ... | 2 | 1 | ... | 1 | ... | ... |
| Found Dead (Cause not stated) ... | 16 | 5 | 2 | 1 | 4 | 4 |
| Other Causes not specified or ill-defined ... ... ... | 40 | 17 | 8 | 2 | 7 | 6 |
| Total... .. ... | *1,007 | 410 | 83 | 57 | 188 | 269 |

* Representing a rate of 6·6 per 1,000 per Annum.

# TABLE IX.

## UNCERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 52 WEEKS ENDED 2ND JANUARY, 1886.

| ALLEGED CAUSE OF DEATH. | Westgate. | | | St. Andrew's. | | | St. Nicholas'. | | | All Saints'. | | | Byker. | | | Total. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. |
| Effects of suppressed Scarlet Fever or Measles | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | *1 |
| Measles | 1 | ... | ... | ... | ... | ... | *3 | ... | ... | ... | ... | ... | ... | ... | ... | *4 | ... | ... |
| From the effects of Measles | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | *1 | ... | 1 | *1 | ... |
| Measles or some other Natural Cause | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... |
| Diarrhœa or other Natural Causes | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... |
| Phthisis & Sore Throat | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Consumption or Heart Disease | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Premature Birth | 9 | ... | ... | ... | ... | ... | 3 | .. | ... | ... | ... | ... | 2 | ... | ... | 14 | ... | ... |
| Premature Birth and Convulsions | *1 | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | ... | *1 | ... | ... |
| Prematurely Born, & without medical aid | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | 1 | ... | ... | 1 | ... | ... |
| Old Age | ... | ... | 1 | ... | ... | 1 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 3 |
| Meningitis | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Apoplexy | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Paralysis | ... | ... | ... | ... | ... | 1 | .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Convulsions | 11 | ... | *1 | 1 | ... | 1 | 5 | ... | ... | 6 | ... | ... | 1 | ... | 1 | 24 | ... | *3 |
| A Convulsion Fit | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... | ... |
| Convulsions the result of Measles | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | *1 |
| A Fit consequent on an attack of Measles or some other Natural Cause | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Convulsions or some Natural Cause | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | *1 | *1 | ... |
| A Fit or some other Natural Cause | *1 | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | *1 |
| Heart Disease | ... | ... | **3 | ... | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 2 | ... | ... | **7 |
| Heart Disease or some other Natural Cause | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *2 |
| Failure of Heart's action, due to Fatty degeneration, or some other Natural Cause | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Bronchitis & Diarrhœa | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | 1 | ... |
| Bronchitis or other Natural Causes | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... |
| Lung Disease | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | *1 |
| Hæmoptysis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | *1 | ... | ... | *1 |
| Chronic-Bright's Disease, Apoplexy | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Dropsy or some other Natural Cause | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | *1 |
| Carried forward... | 25 | 1 | 14 | 1 | 1 | 6 | 11 | ... | 1 | 6 | ... | 1 | 6 | 3 | 7 | 49 | 5 | 29 |

* The asterisks refer to deaths notified by certificate of coroner.

## TABLE IX.—CONTINUED.

### UNCERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 53 WEEKS ENDED 2ND JANUARY, 1886.

| ALLEGED CAUSE OF DEATH. | Westgate. | | | St. Andrew's. | | | St. Nicholas'. | | | All Saints'. | | | Byker. | | | Total. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and Above. | Under 1 Year. | 1 Year and Under 2. | 2 Years and above. |
| Brought forward... | 25 | 1 | 14 | 1 | 1 | 6 | 11 | ... | 1 | 6 | ... | 1 | 6 | 3 | 7 | 49 | 5 | 29 |
| Debility ... ... | 1 | ... | ... | 3 | ... | ... | ... | ... | ... | 4 | ... | ... | 4 | ... | ... | 12 | ... | .. |
| Exhaustion & Decay of Nature ... ... | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | ... | *1 |
| Supposed effects of Whooping Cough ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... |
| Believed from Epilepsy or some other Natural Cause ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *1 |
| Believed from Convulsions or Bronchitis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | .. | ... | 1 | ... | ... |
| Believed from Convulsions or other Natural Causes ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *1 |
| Believed from Convulsion & Diarrhœa or some other Natural Cause ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *1 | ... | ... |
| Believed from Paralysis or some other Natural Cause ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | *1 | ... | ... | ... | ... | ... | *2 |
| Believed from Heart Disease ... ... | ... | ... | ... | ... | ... | .. | ... | ... | 1 | ... | ... | *1 | ... | .. | ... | ... | ... | *2 |
| Suddenly, supposed effects of Teething... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... |
| Believed from Bronchitis ... ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | .. | ... | ... | .. | *1 | ... | ... | *1 | ... |
| Belivd. from Chlorosis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *1 |
| Suposd. Hæmoptysis, the effects of severe Coughing & Weakness... ... | *1 | ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... |
| Believed from Marasmus or other Natural Cause ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | .. | *1 | | ... |
| Believed from the bursting of a blood vessel, having suffered from Bronchitis or some other Natural Cause ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 | ... | ... | ... | ... | ... | *1 |
| Natural Causes, supposed Convulsion fits | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... |
| Exhaustion, consequent on old age, or some other Natural Cause ... ... | ... | ... | *1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | *1 |
| Total ... ... | 28 | 1 | 16 | 5 | 2 | 6 | 11 | ... | 3 | 12 | ... | 7 | 11 | 4 | 7 | 67 | 7 | 39 |

* The asterisks refer to deaths notified by certificate of coroner.

# TABLE X.

## ZYMOTIC DISEASES, A.D. 1885.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES, CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE FEVER AND SMALL-POX HOSPITALS TO THE STREET FROM WHICH EACH PATIENT WAS REMOVED.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | Scarlet Fever. | Diphtheria. |
| Addison road | ... | ... | ... | ... | ... | 9 | ... |
| Addison street | ... | ... | ... | 1 | ... | 2 | ... |
| Akenside hill | ... | ... | ... | ... | ... | 1 | ... |
| Albion place | ... | ... | 1 | ... | ... | 1 | ... |
| Albion row | ... | ... | ... | ... | ... | 11 | ... |
| ,, Day's buildings | ... | ... | ... | ... | ... | 1 | ... |
| Albion street | ... | ... | ... | ... | ... | 5 | ... |
| Alexandre street | ... | ... | 3** | ... | ... | 1 | ... |
| Alexanda place | ... | ... | ... | ... | ... | 1 | ... |
| Alexandra terrace | ... | ... | 1 | ... | ... | ... | ... |
| Alma terrace | ... | ... | ... | ... | ... | 2 | ... |
| Ancrum street | ... | ... | ... | ... | ... | 1 | ... |
| Argyle street | ... | ... | 1 | ... | ... | ... | |
| Ashfield terrace, East | ... | ... | ... | ... | ... | 1 | ... |
| Ashfield terrace, West | ... | ... | ... | ... | ... | 2 | ... |
| | | | | | | | |
| Back lane | ... | ... | ... | .. | ... | 1 | ... |
| Bamborough street | ... | ... | 2 | ... | ... | 4 | .. |
| Barker street | ... | ... | 1* | ... | ... | 1 | ... |
| Barrack road | 1 | ... | ... | ... | .. | 6 | ... |
| ,, (back) | ... | ... | 1* | ... | ... | ... | ... |
| Bath lane | .. | ... | ... | ... | ... | 2* | ... |
| Bath lane terrace | ... | ... | ... | 1 | ... | ... | ... |
| Bayley street | ... | ... | 1 | ... | ... | ... | ... |
| Beaconsfield street | ... | ... | 1 | ... | ... | 2 | 1 |
| Beaumont street | ... | ... | 1* | ... | ... | 2 | ... |
| Bedford street | 1 | .. | ... | ... | ... | ... | ... |
| Belgrave terrace, Elswick road | ... | ... | ... | ... | ... | 1 | .... |
| Belgrave terrace, Mill lane | ... | ... | ... | ... | ... | 3 | ... |
| Bell terrace | ... | ... | ... | ... | ... | 1 | ... |
| Belsay place | ... | ... | 1 | ... | ... | ... | ... |
| Belvidere street | ... | ... | ... | ... | ... | 4 | ... |
| Bentinck street | ... | ... | 2* | ... | ... | 5* | ... |
| Benton bridge | ... | ... | ... | ... | ... | 1 | ... |
| Benton terrace | ... | ... | ... | ... | ... | 1 | ... |
| Bermondsey street | ... | ... | ... | ... | ... | 4* | ... |
| Bigg market | 1 | ... | ... | ... | .. | ... | ... |
| Blackett street | ... | ... | ... | ... | ... | 1 | ... |
| ,, Eldon lane | ... | ... | 1* | ... | ... | ... | ... |
| Blagdon street | 6* | ... | ... | ... | ... | 2 | ... |
| Blandford street | ... | ... | ... | ... | ... | 7 | ... |
| ,, (back) | ... | ... | ... | ... | ... | 1 | ... |
| Blenheim street | ... | ... | 4** | ... | ... | 10 | ... |
| ,, (back) | ... | ... | 1 | ... | ... | ... | 3 |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Con-tinued Fever. | Puer-peral Fever. | Scarlet Fever. | Diph-theria. |
| Bottlehouse row ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Bolingbroke street ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Bowman street ... ... | ... | ... | 1* | ... | ... | ... | ... |
| Brandling village ... ... | ... | ... | ... | 1 | ... | 1 | ... |
| " Jessamine cottages | ... | ... | ... | ... | ... | 1 | ... |
| Brougham place ... ... | 1 | ... | ... | ... | ... | 9* | ... |
| Brunel terrace ... ... ... | 1 | ... | ... | ... | ... | ... | ... |
| Brunswick place ... ... | ... | ... | 1 | ... | ... | ... | ... |
| Budle street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Buckingham street ... ... | ... | ... | 3 | ... | ... | 11* | ... |
| Bulmer street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Burdon terrace ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Burn side ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Burton street ... ... ... | ... | ... | ... | .. | ... | 2 | ... |
| Buxton street ... ... ... | 3* | ... | ... | ... | ... | 1 | ... |
| Byker bank ... ... ... | ... | ... | 3* | ... | ... | 1 | ... |
| " Byker buildings... | ... | ... | 1 | ... | ... | 5 | 1 |
| Byker street ... ... ... | ... | ... | 1 | ... | ... | ... | 1 |
| Byron street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Byron terrace ... ... ... | ... | ... | 1 | ... | ... | 4 | ... |
| Campbell street ... ... | ... | ... | ... | ... | ... | 4 | ... |
| Canada street ... ... ... | ... | ... | 1 | ... | ... | 4 | ... |
| Cannon street ... ... ... | ... | ... | 1 | ... | ... | 2 | ... |
| Carliol square ... ... ... | 1 | ... | 1 | ... | ... | 6 | ... |
| Carlton street ... ... ... | ... | .. | 2 | ... | ... | 2 | ... |
| Castle square ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| " Castle stairs ... | ... | ... | ... | ... | ... | 1 | ... |
| " Three Bulls' Head yard... ... | ... | ... | 2* | ... | ... | ... | ... |
| Centre street ... ... ... | ... | ... | ... | ... | ... | 1* | ... |
| Chapel lane, Westmorland st. | ... | ... | ... | ... | ... | 2* | ... |
| Chapel street ... ... ... | ... | ... | ... | ... | 1 | 2 | ... |
| Charlotte square ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Chatham place ... ... | ... | ... | ... | ... | ... | 2* | ... |
| Chester street ... ... ... | ... | ... | ... | ... | ... | 8 | ... |
| Cheviot view ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Chimney mills ... ... ... | ... | ... | ... | ... | ... | 8 | ... |
| Choppington street ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Church street ... ... ... | ... | ... | 1 | ... | ... | 3 | . |
| Churchill street ... ... | ... | .. | ... | ... | ... | 7 | ... |
| " Churchill cottages | ... | ... | 3 | ... | ... | ... | ... |
| City road ... ... ... | ... | ... | ... | ... | ... | 11* | ... |
| Claremont road ... ... | ... | ... | ... | ... | ... | 7 | ... |
| Claremont terrace ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Clarence crescent ... ... | ... | ... | 1 | ... | ... | 1 | ... |
| Clarence place ... ... | .. | * | ... | ... | ... | ... | ... |
| Clarence street . ... .. | ... | ... | ... | ... | ... | 3 | ... |
| Clavering place ... ... | ... | ... | ... | .. | ... | 1 | ... |
| Clayton park road ... ... | ... | ... | ... | ... | ... | 4 | 7 |
| Clayton park square ... ... | ... | ... | ... | ... | ... | 2 | 1 |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Con-tinued Fever. | Puer-peral Fever. | Scarlet Fever. | Diph-theria |
| Clayton street | ... | ... | ... | ... | ... | 1 | ... |
| Clayton street west | ... | ... | ... | ... | ... | ... | 1* |
| Clifford street | ... | ... | 2 | ... | 1 | 2 | ... |
| Clifton road | ... | ... | ... | ... | ... | 1 | ... |
| Close | ... | ... | ... | 1 | ... | 1 | ... |
| ,, Phœnix mills | 1 | ... | ... | ... | ... | ... | ... |
| ,, Alderson's entry | ... | ... | 1 | ... | ... | 1 | ... |
| ,, Dyer's court | ... | ... | ... | ... | ... | 3 | ... |
| ,, Javel groupe | ... | ... | 1 | ... | ... | ... | ... |
| ,, Jones' buildings | ... | ... | ... | ... | ... | 3 | ... |
| ,, Trotter's entry | ... | ... | ... | ... | ... | 2 | ... |
| Clumber street | 6 | ... | ... | ... | ... | 2 | ... |
| Collingwood street | ... | ... | ... | ... | ... | 1 | ... |
| Collingwood terrace | ... | ... | ... | ... | ... | 1* | 4 |
| Conyer road | ... | ... | ... | ... | ... | 3 | ... |
| Cook street | 2 | ... | ... | ... | ... | ... | ... |
| Cookson street | ... | ... | ... | ... | ... | 2 | 1* |
| Copland terrace | ... | ... | 1 | ... | ... | ... | ... |
| Corbridge street | ... | ... | 2* | ... | ... | 8 | ... |
| Cottenham street | ... | ... | ... | ... | ... | 4* | 1* |
| Crawford row | ... | ... | ... | ... | ... | 3 | ... |
| ,, Heaton low haugh | ... | ... | ... | ... | ... | 3 | ... |
| Crawhall terrace | ... | ... | ... | ... | ... | 1 | ... |
| Crispin street | 5 | ... | ... | ... | ... | ... | ... |
| ,, (back B) | 7 | ... | ... | ... | ... | ... | ... |
| Cromwell street | ... | ... | 1 | ... | ... | 10 | 2 |
| Cross street, Westgate road | ... | ... | 1 | ... | ... | ... | ... |
| Crown street | ... | ... | 2 | ... | ... | ... | ... |
| Croydon road | ... | ... | ... | ... | ... | 1 | ... |
| Cut bank | ... | ... | ... | ... | ... | 4* | ... |
| ,, Gibb's yard | ... | ... | ... | ... | ... | 1 | ... |
| Darn crook | ... | ... | ... | ... | ... | 1 | ... |
| Darnell street | ... | ... | ... | ... | ... | 4* | ... |
| Day street | 1 | ... | ... | ... | ... | 1 | ... |
| Dean street | ... | .. | ... | ... | ... | 2 | ... |
| De Grey street | ... | ... | 1 | ... | ... | 3 | ... |
| Denmark street | ... | ... | ... | 4 | ... | 1 | ... |
| Derby street | ... | ... | ... | ... | ... | 3 | ... |
| Diana street | ... | ... | ... | ... | ... | 1 | .. |
| Dilston road | ... | ... | ... | ... | ... | 1* | ... |
| Dispensary lane | ... | ... | 1 | ... | ... | ... | ... |
| Dobson street | ... | ... | ... | ... | ... | 2 | ... |
| Dog bank | ... | ... | ... | ... | ... | 2 | ... |
| Dog-leap terrace | ... | ... | ... | ... | ... | 2 | ... |
| Douglass terrace | ... | ... | 1 | 1 | ... | 1 | 1 |
| Duke street | ... | ... | 1 | ... | ... | 2 | ... |
| Dunn street | ... | ... | 1 | ... | ... | 5 | ... |
| ,, (back) | ... | ... | ... | ... | ... | 1 | ... |
| Dunn terrace, Byker bank | ... | ... | ... | ... | ... | 8*** | 2** |
| Durham street | ... | ... | 2 | 1 | ... | 1 | ... |

* The asterisks represent deaths and the numerals the total cases in each street

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Con-tinued Fever. | Puer-peral Fever. | Scarlet Fever. | Diph-theria. |
| East parade | ... | ... | ... | ... | ... | 5 | ... |
| Edgeware road | ... | ... | ... | ... | ... | 2 | ... |
| Edward street | ... | ... | ... | ... | ... | 1 | ... |
| Edwin street | ... | ... | ... | ... | ... | 1 | ... |
| Eldon street | .. | ... | 1 | ... | ... | 1 | ... |
| Elizabeth street | ... | ... | ... | 2 | ... | 2 | 1 |
| Ellison place, St. Anthony's | ... | ... | ... | ... | ... | 1 | ... |
| Elswick east terrace | ... | ... | 3* | 1 | ... | 2 | ... |
| Elswick road | ... | ... | 1 | ... | ... | 1* | ... |
| Elswick row | ... | ... | 1 | ... | ... | 1 | 1 |
| Elswick street | ... | ... | ... | ... | ... | 6 | ... |
| Elvet street | ... | ... | ... | ... | ... | 1 | ... |
| Errington street | ... | ... | ... | ... | ... | 3 | ... |
| Eskdale terrace | ... | ... | ... | ... | ... | 1 | 1* |
| Eslington terrace | ... | ... | ... | ... | ... | .. | 1 |
| Fairless street | ... | ... | ... | ... | ... | 8**** | 2* |
| Falconar street | ... | ... | ... | ... | ... | 2 | ... |
| Fenkle street | ... | ... | ... | 1 | ... | 2 | ... |
| Fern avenue | ... | ... | 1 | ... | ... | 1 | ... |
| Flora street | ... | ... | 1 | ... | ... | ... | ... |
| Forth banks (Infirmary) | ... | ... | 5* | ... | ... | 6 | ... |
| ,, Black Bull entry | ... | ... | ... | .. | ... | 2 | ... |
| ,, Pitman's row | ... | ... | ... | ... | ... | 5 | ... |
| Forth street | ... | ... | 1* | ... | ... | ... | ... |
| Forth terrace, (back) | ... | ... | ... | ... | ... | 1 | ... |
| Fountain road | ... | ... | 1 | ... | ... | ... | ... |
| Franklin street | ... | ... | ... | ... | ... | 1 | ... |
| Friars | ... | ... | ... | ... | ... | 2 | ... |
| ,, Tanner's court | ... | ... | 1 | ... | ... | ... | ... |
| Gainsborough grove | ... | ... | 1* | 1 | ... | 3 | .. |
| Gallowgate | ... | ... | 1 | ... | ... | 7 | ... |
| ,, Carnaby's yard | ... | ... | 1 | ... | ... | ... | ... |
| ,, Factory yard | ... | ... | ... | ... | ... | 1 | ... |
| ,, Fleece court | ... | ... | 1 | ... | ... | ... | ... |
| Garth heads, Indust. dwellings | ... | ... | 3 | ... | ... | ... | ... |
| George's road | ... | ... | ... | 1 | ... | ... | ... |
| George street | ... | ... | 1 | 1 | ... | 3* | ... |
| ,, (west) | ... | 1* | 2 | 1 | ... | 1 | ... |
| Gibson street | 1 | ... | 2 | ... | ... | 2 | ... |
| ,, Victoria place | ... | ... | ... | ... | ... | 4** | ... |
| Gladstone street | ... | ... | ... | ... | ... | 4 | ... |
| Glasshouse street | ... | ... | ... | ... | ... | 5 | ... |
| Gloucester road | ... | ... | 1 | ... | ... | 7 | ... |
| Gloucester street | ... | ... | ... | ... | ... | 1 | ... |
| Gluehouse lane | ... | ... | 2 | ... | ... | .. | ... |
| Glue terrace | ... | ... | * | ... | ... | ... | ... |
| Grafton street | ... | ... | 1 | ... | ... | 2 | 1 |
| Grainger park road | ... | ... | ... | ... | ... | 2 | ... |
| Grainger street | ... | ... | 2* | ... | ... | ... | ... |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | Scarlet Fever. | Diphtheria. |
| Greenfield place | ... | ... | ... | ... | ... | 1 | ... |
| Grenville street | ... | ... | 1 | ... | ... | ... | ... |
| Grove street | ... | ... | ... | ... | ... | 4 | ... |
| Haldane terrace | ... | ... | ... | ... | ... | ... | 2 |
| Hamilton street | ... | ... | 1 | .. | ... | 20** | ... |
| Hamond street | ... | ... | ... | ... | ... | 1 | ... |
| Hamsterley road | ... | ... | ... | ... | ... | 2 | ... |
| Hanover street | ... | ... | 1* | ... | 1 | 1 | ... |
| „ (back) | 1 | ... | ... | ... | ... | ... | ... |
| Hanover square, Belcher's yd. | ... | ... | ... | ... | ... | 1 | ... |
| „ White's yard | ... | ... | ... | ... | ... | 1 | ... |
| Hanover terrace, Dark entry | ... | ... | ... | ... | ... | 1 | ... |
| Harbottle street | ... | ... | ... | ... | ... | 5 | ... |
| Harle street | ... | ... | ... | ... | ... | 1 | ... |
| Harriett street | ... | ... | ... | ... | ... | 6 | ... |
| Harrison place | ... | ... | ... | ... | ... | 5 | ... |
| Harvey street | ... | ... | ... | ... | ... | 8* | ... |
| Havelock street | ... | ... | ... | ... | ... | 1 | ... |
| Hawes street | ... | ... | 1 | 1 | ... | 9* | ... |
| Hawthorn street | ... | ... | 1 | ... | ... | 7 | ... |
| Headlam street | ... | ... | 1 | ... | ... | 4 | 1 |
| Heaton park road | ... | ... | ... | ... | ... | 2 | ... |
| Heaton road | ... | ... | ... | ... | ... | 1 | ... |
| Heaton terrace | ... | ... | ... | ... | ... | 1 | ... |
| Hedley place | ... | ... | 1 | ... | ... | 4 | ... |
| Hedley street | ... | ... | 1* | ... | ... | 2 | ... |
| Henry street | ... | ... | 2* | ... | ... | 2 | 2* |
| Herbert street | ... | ... | 1 | ... | ... | 7* | ... |
| „ (back) | ... | ... | ... | ... | ... | 1 | ... |
| Hewgill terrace | ... | ... | ... | ... | ... | 1 | ... |
| High bridge | ... | ... | 1 | ... | ... | ... | ... |
| High Friar street | ... | ... | 1 | ... | ... | 4 | ... |
| Hill street | ... | ... | 1* | 1 | ... | 2 | ... |
| Hindhaugh street | ... | 1 | ... | ... | ... | 2 | ... |
| Holly avenue | ... | ... | 2 | ... | ... | 3 | 1 |
| Horatio street | ... | ... | ... | ... | ... | 1 | ... |
| Howard street | ... | ... | ... | ... | ... | 5* | ... |
| Hull street | 4 | ... | 2 | ... | ... | 4 | ... |
| „ (back) | 1 | ... | ... | ... | ... | 3 | ... |
| Hunter road | ... | ... | 1 | 1 | ... | 1 | ... |
| Hutton terrace | ... | ... | ... | ... | ... | 1 | ... |
| Ingham place | ... | ... | ... | ... | ... | 1 | ... |
| Janet street | ... | ... | 1 | .. | ... | 2 | ... |
| Jefferson street | ... | ... | 3 | ... | ... | 10 | 1 |
| Jesmond | ... | ... | ... | ... | ... | 4 | ... |
| Jesmond dene | ... | ... | ... | ... | ... | 2 | ... |
| Jesmond gardens | ... | ... | ... | ... | ... | 1 | ... |
| Jesmond road | ... | ... | ... | ... | ... | 2 | ... |
| Jesmond vale | ... | ... | 1* | ... | ... | 3* | 1* |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Con-tinued Fever. | Puer-peral Fever. | Scarlet Fever. | Diph-theria. |
| Jubilee road | 1 | ... | ... | ... | ... | ... | ... |
| Kent street | ... | ... | ... | ... | ... | 6 | 4** |
| Kirk street | ... | ... | ... | ... | ... | 7* | 1 |
| Kirsop street | ... | ... | ... | ... | ... | 3 | ... |
| Kyle street | ... | .. | ... | 2 | .. | ... | ... |
| Lambton place | ... | ... | ... | ... | ... | 2 | ... |
| „ Lambton court | ... | ... | ... | ... | ... | 1* | ... |
| Lancaster street | ... | ... | 1 | ... | ... | ... | ... |
| Langhorn street | ... | ... | ... | ... | ... | 3 | 1 |
| Laurel street | ... | ... | 2 | 1 | ... | ... | ... |
| Lawson street | 1 | ... | ... | ... | ... | ... | ... |
| Lawton street | ... | ... | ... | ... | ... | 1 | ... |
| Leazes terrace | ... | ... | ... | ... | ... | 3 | 1* |
| Leighton street | ... | ... | 1 | ... | ... | 1 | ... |
| „ Coxon's yard | ... | ... | ... | ... | ... | 1 | ... |
| Lily crescent | ... | ... | ... | ... | ... | 1 | ... |
| Lisle street | ... | ... | 1 | ... | ... | ... | ... |
| Liverpool street | ... | ... | 1 | ... | ... | 4 | ... |
| Loadman street | ... | ... | ... | ... | ... | 3 | ... |
| Long row, Spital Tongues | ... | ... | 4* | 4 | ... | 1 | ... |
| „ Byker | ... | ... | ... | 1 | ... | 4 | ... |
| Longley street | ... | ... | ... | ... | ... | 6 | ... |
| Lord Byron terrace | ... | ... | 1* | ... | ... | ... | ... |
| Lord street | ... | ... | 1 | ... | ... | ... | ... |
| Lovaine place | ... | ... | * | ... | ... | 1 | ... |
| Low Friar street | ... | 1 | ... | ... | ... | 2* | ... |
| Malcolm street | ... | ... | ... | 1 | ... | 8** | ... |
| Malvern street | ... | ... | ... | 2 | ... | 1 | ... |
| Manor chare | ... | ... | ... | ... | ... | 1 | ... |
| Mansfield street | ... | ... | 2* | 1 | ... | 5 | ... |
| Maple street | ... | ... | 1 | ... | ... | 5* | ... |
| Marianople street | ... | ... | ... | ... | ... | 1 | ... |
| Marlborough crescent | ... | ... | 1 | ... | ... | ... | ... |
| Marsden street | .. | ... | ... | ... | ... | 4 | ... |
| Mather street | ... | ... | ... | ... | ... | 1 | ... |
| Matthew street | ... | ... | 1 | ... | ... | 2 | ... |
| Mawson street | ... | 1 | ... | ... | ... | ... | ... |
| Melbourne street | 2 | ... | 2* | ... | ... | ... | ... |
| Mill lane | ... | ... | 6** | 1 | ... | 6 | 1 |
| Milton street | ... | ... | ... | ... | ... | 5 | ... |
| Mitford street | ... | ... | 1* | ... | ... | 3* | ... |
| „ Colliery fields | ... | ... | ... | ... | ... | 2 | ... |
| Molineux street | ... | ... | ... | ... | ... | 1 | ... |
| Monday street | ... | ... | ... | 1 | ... | 9** | ... |
| Morley street (late Quarry st.) | ... | ... | 1 | ... | ... | 1* | ... |
| Morpeth street | ... | ... | ... | ... | ... | 1* | ... |
| Nesham street | ... | ... | 3 | ... | .. | 2 | ... |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | Scarlet Fever. | Diphtheria. |
| Newgate street ... ... | ... | ... | 1* | ... | ... | 9* | ... |
| ,, Barrow's court | ... | ... | ... | ... | ... | ... | 2* |
| ,, Weir's court ... | ... | ... | 1 | ... | ... | ... | ... |
| New mills ... ... ... | ... | ... | 2* | ... | ... | 1 | ... |
| Newton street ... ... ... | ... | ... | ... | ... | ... | 5 | ... |
| Noble street ... ... | ... | ... | 1 | ... | ... | ... | ... |
| Norfolk road ... ... ... | ... | ... | ... | ... | 1 | ... | ... |
| Normanton terrace ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Northcote street ... ... | ... | ... | 1 | ... | ... | 4 | ... |
| North road ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| North terrace ... ... ... | ... | ... | 1 | ... | ... | ... | ... |
| Northumberland street ... | ... | ... | 4* | ... | ... | 2 | 1 |
| ,, Elswick court | ... | ... | 1 | ... | ... | 1 | ... |
| ,, Cail's yard ... | ... | ... | ... | ... | ... | 2 | ... |
| North view ... ... ... | ... | ... | ... | 2 | ... | 7 | 1 |
| Nun street ... ... ... | ... | ... | ... | ... | .. | 6* | ... |
| Oak street ... ... ... | ... | ... | ... | ... | ... | 3 | ... |
| Oaks place ... ... ... | ... | ... | .. | ... | ... | 3 | ... |
| Oaks square ... ... ... | ... | ... | 1 | ... | ... | 1 | ... |
| Orchard street, Slum's court ... | ... | ... | 2 | ... | ... | ... | ... |
| Ord street ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Ouse street ... ... ... | ... | ... | ... | ... | ... | 7** | ... |
| Osborne avenue ... ... | ... | ... | ... | ... | ... | 6 | ... |
| Osborne road ... ... ... | ... | ... | ... | ... | ... | 1 | 3 |
| Osborne villas ... ... ... | ... | ... | 1 | ... | ... | 1 | ... |
| Otterburn terrace ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Oxford street ... ... ... | ... | ... | ... | ... | ... | 4* | ... |
| Oystershell lane ... ... | ... | ... | 1 | ... | ... | ... | ... |
| Palace street ... ... ... | ... | ... | ... | ... | ... | 3 | ... |
| Panmure street ... ... | ... | ... | 2* | ... | ... | 11 | ... |
| Park place ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Park road ... ... ... | ... | ... | 2* | ... | ... | 7 | ... |
| Parker street ... ... ... | ... | ... | ... | ... | ... | 14** | 2 |
| Pawton dene terrace ... ... | ... | ... | ... | ... | 1 | 1* | ... |
| Penn street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Percy street .. ... ... | ... | ... | 1 | ... | ... | 5 | ... |
| ,, Cail's yard ... | ... | ... | ... | ... | ... | 3 | ... |
| Percy terrace ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Pilgrim street ... ... ... | ... | ... | 3 | 1* | ... | 8* | ... |
| ,, Bell's court ... | ... | ... | 2* | ... | ... | 1 | ... |
| ,, Forster's court... | ... | ... | 2* | ... | ... | 2 | ... |
| ,, Hails' yard ... | ... | ... | ... | ... | ... | ... | 1 |
| ,, James' court ... | ... | ... | ... | ... | ... | 1 | ... |
| ,, Low bridge ... | ... | ... | ... | ... | ... | 2* | ... |
| ,, Painter heugh... | ... | ... | ... | ... | ... | 2 | ... |
| ,, Robin Hood yard | ... | ... | ... | 1 | ... | ... | ... |
| ,, St. Andrew's crt. | ... | ... | .. | ... | ... | 3 | ... |
| ,, Wellington place | ... | ... | ... | ... | ... | 1 | ... |
| Pine street ... ... ... | ... | ... | ... | ... | ... | 4 | ... |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—Continued.

### Street List of Cases and Deaths from the undermentioned Diseases.

| LOCALITY. | * Cases and Deaths from | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | Scarlet Fever. | Diphtheria. |
| Pink lane | ... | ... | ... | ... | ... | 2 | ... |
| Pitt street | ... | ... | ... | ... | ... | 7 | 1* |
| Pity me | ... | ... | ... | ... | ... | ... | 1* |
| Plummer street | ... | ... | ... | ... | ... | 1 | ... |
| Porter's hill, Byker | ... | ... | 1 | ... | ... | ... | ... |
| Portland road | ... | ... | 3 | ... | ... | 2 | ... |
| Portland street | 1 | ... | ... | ... | ... | 1 | ... |
| Portland terrace | ... | ... | ... | ... | ... | 2 | ... |
| Pottery bank, St. Anthony's | ... | ... | 2 | ... | ... | 2 | ... |
| Prudhoe place, No. 1 court | ... | ... | ... | ... | ... | 1 | ... |
| „ No. 2 court | ... | ... | ... | ... | ... | 3 | ... |
| Prudhoe street | ... | 1* | ... | ... | ... | 5 | ... |
| Quality row | ... | ... | ... | 2 | ... | 1 | ... |
| Quayside | 1 | ... | ... | ... | ... | ... | ... |
| Raby street | ... | ... | ... | ... | ... | 2 | ... |
| Race street | ... | ... | 1 | ... | ... | ... | ... |
| Railway place | ... | ... | ... | 4 | ... | ... | ... |
| Railway street | ... | ... | 2 | ... | ... | 1 | 1 |
| Railway terrace, Crucible place | ... | ... | ... | ... | ... | 3 | ... |
| Ramshaw street | ... | ... | 2 | ... | 1 | 1 | ... |
| Regent terrace | ... | ... | ... | ... | ... | 5 | ... |
| Rendel street | ... | ... | ... | 1 | ... | 1 | ... |
| „ (back) | ... | ... | ... | ... | ... | 1 | ... |
| Richmond street | ... | ... | ... | ... | ... | 2** | 1* |
| Ridley place | ... | ... | ... | ... | ... | 2 | ... |
| Ridley street | ... | ... | 1 | ... | ... | 9* | 1 |
| Ripponden street | ... | ... | ... | ... | 1* | 1 | ... |
| Robinson street | ... | ... | ... | ... | ... | 9** | ... |
| Rock terrace | ... | ... | ... | ... | ... | 1 | ... |
| Roger street | ... | ... | ... | ... | ... | 1 | 1* |
| Ropery terrace | ... | ... | ... | ... | ... | 3 | 2 |
| Rosedale street | ... | ... | ... | ... | ...* | 2 | ... |
| Rosedale terrace | ... | ... | 2 | ... | ... | ... | ... |
| Ryehill | ... | ... | ... | ... | ... | 4 | ... |
| Salisbury street | ... | ... | ... | ... | ... | 5* | ... |
| Sandgate, White Boar entry | ... | ... | ... | ... | ... | 1 | ... |
| „ Chapel lane | ... | ... | 1 | ... | ... | ... | ... |
| „ Johnson's entry | ... | ... | 1 | ... | ... | ... | ... |
| Sandyford road | ... | ... | ... | ... | ... | 8* | ... |
| Sandyford square | ... | ... | ... | ... | ... | 1 | ... |
| Sarah street | ... | ... | 1 | ... | 1* | 3* | ... |
| Scotswood road | 1 | ... | ... | 1 | ... | 22 | 1* |
| Seaham street | ... | ... | ... | ... | ... | 1 | ... |
| Sheraton street | ... | ... | ... | ... | ... | 1 | ... |
| „ (back) | ... | ... | 1* | ... | ... | ... | ... |
| Shieldfield green | ... | ... | ... | ... | ... | 5 | ... |
| Shieldfield lane | ... | ... | ... | ... | ... | 3* | 1 |
| Shields road | ... | ... | ... | 1 | ... | 9*** | ... |
| Shields road, Catterick blds. | ... | ... | ... | ... | ... | 1 | ... |
| Shield street | ... | ... | ... | ... | ... | 2 | ... |
| Shipley street | ... | ... | ... | ... | ... | 2* | 2* |

* The asterisks represent deaths and the numerals the total cases in each street.

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Con-tinued Fever. | Puer-peral Fever. | Scarlet Fever. | Diph-theria. |
| Shot Factory lane | ... | ... | ... | ... | ... | 1* | ... |
| Silver street | ... | ... | 1 | ... | ... | ... | ... |
| „ Meeting House lane | ... | ... | ... | ... | ... | 2* | ... |
| Simpson street | 2 | ... | ... | ... | ... | 8 | ... |
| Snow street | ... | ... | ... | ... | ... | 1 | ... |
| South view | ... | ... | 1 | ... | ... | 2 | ... |
| Spring street | ... | ... | 1* | ... | ... | 5 | ... |
| St. Andrew's street | ... | ... | ... | ... | ... | 4* | ... |
| St. Ann's street | ... | ... | ... | ... | 1 | ... | .. |
| „ Crozier's yard | ... | ... | ... | ... | ... | 1 | ... |
| St. Anthony's quay | ... | ... | 1* | ... | ... | ... | ... |
| St. James' terrace | ... | ... | ... | ... | ... | 1 | ... |
| St. Lawrence road | ... | ... | 1* | ... | ... | 1 | ... |
| „ Pit row | ... | ... | 1* | ... | ... | .... | ... |
| St. Lawrence low road | ... | ... | ... | ... | ... | 2 | ... |
| St. Mary street, Scott's entry | ... | ... | ... | ... | ... | ... | 1* |
| St. Nicholas' sq., St. Nicholas' buildings | ... | ... | .. | ... | ... | 2 | ... |
| St. Paul's terrace | ... | ... | ... | ... | ... | 6 | ... |
| St. Peters' road | ... | ... | ... | ... | ... | 2 | ... |
| St. Thomas' terrace | ... | ... | 1 | ... | ... | ... | ... |
| Stanhope street | 1 | ... | 2 | 3** | ... | 16* | 1* |
| Stanley street, Crossby terrace | ... | ... | ... | ... | ... | 3 | ... |
| „ Walker road | ... | ... | ... | ... | ... | 3 | ... |
| Stanton street | ... | ... | 1 | ... | ... | 5 | ... |
| Stepney lane | 7* | ... | 2* | ... | ... | ... | ... |
| Stepney road | ... | ... | ... | ... | ... | 6* | ... |
| „ Stepney square | ... | ... | ... | ... | ... | 2 | ... |
| Stoddart street | ... | ...* | ... | ... | ... | 3 | ... |
| Stone street | ... | .. | 2* | ... | ... | 6* | 1 |
| Stowell square | ... | ... | ... | ... | 1* | 2 | ... |
| Stowell street | ... | ... | 1 | ... | ... | 2 | ... |
| „ Watson's court | ... | ... | ... | ... | ... | 2 | ... |
| „ West walls | ... | ... | ... | ... | ... | 1 | ... |
| Stratford road, | ... | ... | ... | 3 | ... | ... | ... |
| Strickland street | 4 | ... | ... | ... | ... | 1 | ... |
| Suffolk street | ... | ... | ... | ... | ... | 4 | ... |
| Summerhill terrace | ... | .. | ... | ... | ... | 3 | ... |
| Sunderland street | ... | ... | ... | 1 | ... | 9 | ... |
| Swan street | ... | ... | 1 | ... | ... | 1 | ... |
| Sycamore street | ... | ... | 2 | 1 | ... | 14**** | 1* |
| Tamworth road | ... | ... | 1 | ... | ... | ... | ... |
| Tankerville terrace | ... | ... | ... | ... | ... | ... | 3 |
| Terrace place | ... | ... | 1 | ... | ... | ... | ... |
| Teynham street | ... | ... | ... | ... | ... | 1 | ... |
| Thornborough street | ... | 1* | 1 | ... | .. | 4** | 1 |
| Trafalgar street | ... | 1* | 2 | ... | 1 | 2 | ... |
| „ (back) | ... | ... | ... | ... | ... | 1 | ... |
| Tulloch street | ... | ... | 1 | ... | ... | 3 | 1 |
| Turner street | ... | .. | 1 | ... | ... | 6 | ... |
| Tuthill stairs | ... | .. | ... | ... | ... | 3 | ... |

* The asterisks represent deaths and the numerals the total cases in each street

## TABLE X.—CONTINUED.

### STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

| LOCALITY. | * CASES AND DEATHS FROM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Small-pox. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | Scarlet Fever. | Diphtheria. |
| Tweed street (back) ... ... | 1 | ... | 1 | 1 | ... | 5 | 1 |
| Tyne street ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Tynemouth road ... .. | ... | ... | 3* | ... | ... | 4 | 1 |
| Union street ... ... ... | 2 | ... | 1 | 1 | ... | 2 | ... |
| Union terrace east ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Vale street ... ... ... | ... | ... | ... | ... | ... | 5 | ... |
| Victoria place, Hanover square | ... | ... | ... | .. | ... | 1 | ... |
| Victoria street ... ... ... | ... | ... | ... | ... | ... | 3 | ... |
| Victoria villas ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Villa place ... ... ... | ... | ... | 1* | ... | ... | 1* | ... |
| ,, High Villa place ... | ... | ... | 1* | ... | ... | 1 | ... |
| Vine lane ... ... ... | 1 | ... | ... | ... | ... | ... | ... |
| Walker road ... ... ... | ... | ... | ... | ... | ... | 3 | 2 |
| Wall Knoll ... ... ... | ... | ... | ... | ... | ... | 5 | ... |
| Waller street ... ... ... | ... | ... | ... | ... | ... | ... | 1* |
| Warden street ... ... ... | .. | ... | ... | ... | ... | 1 | ... |
| Wardle terrace ... ... | ... | ... | ... | ... | ... | 1 | ... |
| Water street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Waverley terrace ... ... | ... | ... | 1* | ... | ... | ... | ... |
| Wellesley terrace ... ... | ... | ... | .. | ... | ... | 2* | ... |
| Wellington street ... ... | ... | ... | 1* | ... | ... | 4 | 1 |
| Wentworth place ... ... | ... | ... | ... | ... | ... | 6 | ... |
| Wesley street ... ... ... | ... | ...* | 1 | ... | ... | ... | ... |
| West parade ... ... ... | 1 | ... | ... | ... | ... | ... | 1 |
| West street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Westgate road... ... ... | ... | ... | 1* | ... | ... | 12* | 1* |
| ,, Workhouse ... | ... | 1 | 8** | ... | ... | 19 | 1* |
| ,, New court ... | ... | ... | ... | ... | ... | 7 | ... |
| ,, Pearson's court .. | ... | ... | ... | ... | ... | ... | 1* |
| ,, Zion court ... | ... | ... | ... | ... | ... | 1 | ... |
| Westmorland lane ... ... | ... | ... | 2 | ... | ... | ... | ... |
| Westmorland road ... ... | ... | ... | 1 | ... | ... | 4 | ... |
| ,, Park parade ... | ... | ... | ... | ... | ... | ... | 1 |
| Westmorland street ... ... | ... | ... | ...* | ... | ... | ... | ... |
| Westmorland terrace ... | ... | ... | 1 | ... | ... | 4 | ... |
| Wharncliffe street ... ... | ... | ... | 1 | ... | ... | 9 | ... |
| Wigham street... ... ... | ... | ... | ... | ... | ... | 1* | ... |
| Wilkie street ... ... ... | ... | ... | ... | ... | ... | 1 | ... |
| William street... ... ... | .. | ... | ... | ... | ... | 2 | ... |
| Windsor crescent (back) ... | ... | ... | 1* | ... | ... | ...* | ... |
| Worley street ... ... ... | ... | ... | 2* | ... | ... | 3 | ... |
| Wylam road ... ... ... | ... | ... | 1 | ... | ... | ... | ... |
| York street ... ... ... | ... | ... | ... | ... | ... | 2 | ... |
| Yorkshire street ... ... | ... | ... | ... | 1* | ... | ... | ... |
| TOTAL ... ... | 70 | 8 | 251 | 59 | 11 | 1,226 | 91 |

* The asterisks represent deaths and the numerals the total cases in each street.

N.B.—Among the cases notified under the Local Act as Continued Fever, three are certified as having died from Enteric Fever, one from Typhus, and one from Scarlet Fever; two cases notified as Diphtheria are certified as having died from Scarlet Fever; two cases notified as Enteric Fever are certified as having died from Typhus; one case notified as Scarlet Fever, is certified as having died from Enteric Fever; and one case notified as Typhus is certified as having died from Enteric Fever. In each of these cases the certified cause of death only is recorded on the street list. In two other cases the cause of death only is recorded, owing to their being notified towards the close of 1884. In one instance a death is recorded as Puerperal Fever, the case not having been notified.

## TABLE XI.

### Admissions to and Deaths at the Fever and Small-pox Hospitals from 1st January to 31st December, 1885.

| DISEASES. | Admissions. | | | | | | | | | | | | | Deaths. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | Mar. | April | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Jan. | Feb. | Mar. | June. | July. | Sept. | Oct. | Nov. | Total |
| Small-pox ... ... | 3 | 4 | 8 | 6 | 5 | ... | ... | ... | ... | ... | ... | ... | 26 | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Scarlet Fever ... | 3 | 5 | ... | ... | 4 | ... | 7 | ... | 7 | 6 | 2 | 4 | 38 | 1 | ... | ... | ... | 1 | ... | ... | ... | 2 |
| Typhus Fever ... | ... | ... | ... | ... | 2 | 1 | 1 | .. | 1 | 1 | ... | ... | 6 | ... | ... | ... | 2 | ... | ... | 1 | ... | 3 |
| Enteric Fever ... | 3 | 3 | ... | 1 | 1 | 2 | 1 | 1 | 4 | 8 | 10 | 2 | 36 | 1 | 1 | ... | 1 | 1 | 1 | 2 | 3 | 10 |
| Continued Fever ... | .. | ... | 1 | ... | ... | 1 | ... | ... | 1 | ... | 1 | 1 | 5 | ... | ... | ... | ... | ... | ... | .. | ... | ... |
| Diphtheria ... ... | ... | ... | ... | ... | .. | 1 | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Measles ... ... | ... | ... | ... | ... | ... | 3 | ... | ... | ... | ... | ... | ... | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Febricula ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | ... | 2 | 4 | ... | ... | ... | ... | ... | .. | ... | ... | ... |
| Other Diseases, not febrile ... | ... | ... | 1 | ... | ... | ... | ... | ... | 6 | 1 | ... | 1 | 9 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| TOTAL ... | 9 | 12 | 10 | 7 | 12 | 8 | 9 | 1 | 19 | 18 | 13 | 10 | 128 | 2 | 1 | 1 | 3 | 2 | 1 | 3 | 3 | 16 |

## TABLE XII.

### Return of Suspected and Unwholesome Provisions Inspected during the Year 1885.

| PROVISIONS INSPECTED. | Amount of Suspected Provisions Inspected. | Condition. | | Bad—How Disposed of. | |
|---|---|---|---|---|---|
| | | Fit for Food. | Unfit for Food. | Destroyed by Order of Justice. | Destroyed with Owner's Consent. |
| Carcases of Beef... ... | 106 | 71 | 35 | 1 | 34 |
| Quarters of Beef... ... | 2 | ... | 2 | ... | 2 |
| Carcases of Veal... ... | 29 | 19 | 10 | 1 | 9 |
| ,, Mutton ... | 146 | 75 | 71 | ... | 71 |
| ,, Pork... ... | 124 | 76 | 48 | 2 | 46 |
| Fish, Mackerel ... ... | 163 | ... | 163 | ... | 163 |

Of the carcases returned as fit for food, about 20 per cent. of the animals had been more or less bruised during transit. The bruised parts were cut off and destroyed.

Three persons have been summoned, under the Public Health Act, for being the owners of unsound meat, intended for human food. One was fined £5 and costs; and one 20s. and costs, and one summons was withdrawn.

*(Signed)* WM. HEDLEY, Inspector.

## TABLE XIII.

### RETURN OF FISH RECEIVED IN NEWCASTLE FISH MARKET, CLOSE, FROM 5TH JANUARY, 1885, TO 2ND JANUARY, 1886.

| DESCRIPTION. | DELIVERED BY BOAT. | | | | | | DELIVERED BY RAIL. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Baskets. | Barrels. | Boxes. | Kits. | Bags. | Fish. | Baskets. | Barrels. | Boxes. | Kits. | Bags. | Fish. |
| Cod ... ... ... | 762 | 589 | ... | ... | ... | ... | 55 | 252 | ... | ... | ... | ... |
| Conger ... ... | 1 | 5 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Gurnet ... ... | 17 | ... | ... | ... | ... | ... | 3 | 6 | ... | ... | ... | ... |
| Haddock ... ... | 7,229 | 673 | ... | ... | ... | ... | 444 | 467 | ... | ... | ... | ... |
| Herring ... ... | 30 | 7,366 | ... | ... | ... | ... | 9 | 1,056 | ... | ... | ... | ... |
| Seph. or Ling ... | 393 | 410 | ... | ... | ... | ... | 10 | 2,857 | ... | ... | ... | ... |
| Mackerel ... ... | ... | ... | 52 | ... | ... | ... | ... | ... | 1,490 | ... | ... | ... |
| Salmon ... ... | ... | ... | 4 | ... | ... | ... | ... | ... | 32 | ... | ... | ... |
| Trout ... | ... | ... | 2 | ... | ... | ... | ... | ... | 27 | ... | ... | ... |
| Black Jack... ... | 129 | 13 | ... | ... | ... | ... | ... | 43 | ... | ... | ... | ... |
| Whiting ... ... | 436 | ... | ... | ... | ... | ... | ... | 7 | ... | ... | ... | ... |
| Hake ... ... | ... | ... | ... | ... | ... | 73 | ... | ... | ... | ... | ... | ... |
| Halibut ... ... | 49 | 163 | 1 | ... | ... | ... | 10 | 56 | 30 | ... | ... | ... |
| Plaice ... ... | 208 | 335 | ... | 1 | ... | ... | 27 | 178 | ... | ... | ... | ... |
| Skate ... ... | 207 | 128 | ... | ... | ... | ... | 5 | 344 | ... | ... | ... | ... |
| Soles ... ... | 35 | ... | ... | ... | ... | ... | 5 | ... | ... | ... | ... | ... |
| Turbot ... ... | ... | ... | ... | ... | ... | 214 | ... | ... | ... | ... | ... | 3 |
| Cat-fish ... ... | ... | ... | ... | ... | ... | 354 | ... | ... | ... | ... | ... | ... |
| Dog-fish ... ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... |
| Monk-fish ... ... | 199 | 85 | ... | ... | ... | ... | 11 | 5 | ... | ... | ... | ... |
| Cockles ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 | ... |
| Mussels ... ... | ... | ... | ... | ... | 165 | ... | ... | ... | ... | ... | 341 | ... |
| Crabs ... ... | ... | ... | ... | ... | ... | ... | ... | 116 | ... | ... | ... | ... |
| Lobsters ... ... | ... | ... | ... | ... | ... | ... | ... | 4 | ... | ... | ... | ... |
| Crayfish ... ... | 370 | ... | ... | ... | ... | ... | 3 | 2 | ... | ... | ... | ... |
| Whelks ... ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | ... | ... | ... |
| Winkles ... ... | ... | ... | ... | ... | ... | ... | ... | 166 | ... | ... | ... | ... |
| Shrimps ... ... | ... | ... | ... | ... | ... | ... | 9 | ... | ... | ... | ... | ... |
| Prawns ... ... | 86 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Findon Haddocks... | ... | ... | ... | ... | ... | ... | ... | 96 | 4,956 | ... | ... | ... |
| Kippered Mackerel | ... | ... | ... | ... | ... | ... | ... | ... | 797 | ... | ... | ... |
| Kippered Herring... | ... | ... | ... | ... | ... | ... | ... | ... | 14,690 | ... | ... | ... |
| Bloaters ... ... | ... | ... | ... | ... | ... | ... | ... | ... | 5,868 | 258 | ... | ... |
| Sprats ... ... | ... | 22 | ... | ... | ... | ... | ... | 226 | ... | ... | ... | ... |
| Oysters ... ... | ... | ... | .. | ... | ... | .. | ... | 30 | ... | ... | ... | ... |
| Totals ... ... | 10,151 | 9,789 | 59 | 1 | 165 | 642 | 591 | 5,911 | 27,890 | 258 | 350 | 3 |
| Totals in previous year .. | 7,067 | 2,883 | 306 | ... | ... | 823 | 1,042 | 5,968 | 15,501 | ... | 93 | 166 |

Large importations of Herring, &c., of a fine quality, have arrived from Norwegian and other Continental coasts, and the year under Report shews an increase of 21,961 packages over the return for 1884. The destruction of Fish has occasionally been necessary, owing to decomposition from heat, close packing, or delay in transit. No diseased Fish has been found.

(Signed) WILLIAM T. CLARKE,

CHIEF INSPECTOR OF NUISANCES AND INSPECTOR OF FISH.

## TABLE XIV.

### INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH DEPARTMENT DURING THE YEAR 1885.

| | | | |
|---|---|---|---|
| 168 | Half Straw Mattresses. | 10 | Flock Beds. |
| 7 | Straw Beds. | 1 | ,, Bolster. |
| 29 | Bed Ticks. | | |

### INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS.

| FROM THE CITY. | | FROM THE FEVER HOSPITAL. | |
|---|---|---|---|
| 434 | Feather Beds. | 132 | Beds. |
| 480 | Flock ,, | 64 | Mattresses. |
| 985 | Mattresses. | 298 | Pillows. |
| 1,619 | Pillows. | 6 | Bolsters. |
| 796 | Bolsters. | 300 | Blankets. |
| 859 | Blankets. | 103 | Rugs. |
| 672 | Rugs. | 116 | Counterpanes. |
| 226 | Counterpanes. | 987 | Articles of Wearing Apparel. |
| 173 | Bed and Window Curtains. | 5 | Boxes of Nurses' and Servants' Clothing |
| 193 | Cushions. | 122 | Miscellaneous Articles. |
| 146 | Hearth Rugs and Door Mats. | 600 | Books. |
| 194 | Carpets. | | |
| 695 | Books. | | |
| 922 | Articles of Wearing Apparel. | | |
| 673 | Miscellaneous Articles. | | |

## TABLE XV.

### SUMMARY OF CASES DISINFECTED BY THE HEALTH DEPARTMENT DURING THE YEAR ENDED 31ST DECEMBER, 1885.

| PARISH OR TOWNSHIP. | NATURE OF DISEASE. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Small Pox. | Scarlet Fever. | Diphtheria. | Typhus Fever. | Enteric or Typhoid Fever. | Continued Fever. | Puerperal Fever. | TOTAL. |
| Elswick ... ... ... | 33 | 301 | 9 | 1 | 62 | 21 | 1 | 428 |
| Westgate ... ... ... | 2 | 229 | 16 | 2 | 54 | 12 | ... | 315 |
| St. Andrew's ... ... | 5 | 150 | 4 | 1 | 32 | 7 | ... | 199 |
| St. John's... ... ... | ... | 49 | 1 | 1 | 13 | 1 | 2 | 67 |
| St. Nicholas' ... ... | 3 | 24 | ... | ... | 1 | 1 | ... | 29 |
| All Saints' ... ... | 25 | 163 | 11 | 1 | 41 | 6 | 4 | 251 |
| Jesmond ... ... ... | ... | 51 | 24 | ... | 6 | 1 | ... | 82 |
| Byker ... ... | 2 | 235 | 27 | 2 | 31 | 15 | 4 | 316 |
| Total ... ... | 70 | 1,202 | 92 | 8 | 240 | 64 | 11 | 1,687 |
| Total Infected Households disinfected during the year ... ... ... | | | | | | | | 1,141 |

In addition to the above, 89 cases of Measles and 23 cases of Diarrhœa have been inquired into, and disinfected, etc.

# TABLE XVI.—NUISANCE REMOVAL.

## SUMMARY OF NOTICES SERVED FOR NUISANCES DURING THE YEAR ENDED 31ST DECEMBER, 1885.

| NATURE OF OFFENCE. | No. 1 DISTRICT. | | | No. 2 DISTRICT. | | | No. 3 DISTRICT. | | | No. 4 DISTRICT. | | | TOTAL. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Informal * | Formal. | Total. | Informal. | Formal. | Total. | Informal. | Formal. | Total. | Informal. | Formal. | Total. | Informal. | Formal. | Total. |
| Rooms ordered to be closed, as being unfit for human habitation ... ... | ... | 63 | 63 | 2 | 6 | 8 | ... | 30 | 30 | ... | 1 | 1 | 2 | 100 | 102 |
| Rooms cleaned and repaired ... ... | 16 | 23 | 39 | 7 | 23 | 30 | 6 | 33 | 39 | 3 | 11 | 14 | 32 | 90 | 122 |
| Overcrowding ... ... ... ... | 2 | 30 | 32 | 1 | 14 | 15 | ... | 7 | 7 | ... | 2 | 2 | 3 | 53 | 56 |
| Dilapidated yards and passages ... | 22 | 81 | 103 | 22 | 65 | 87 | 9 | 82 | 91 | ... | 30 | 30 | 53 | 258 | 311 |
| Dirty yards, passages, staircases, &c. | 27 | 250 | 277 | 11 | 94 | 105 | 3 | 221 | 224 | ... | 45 | 45 | 41 | 610 | 651 |
| Defective and badly-constructed drains and sinks, bath, lavatory, and cistern wastes connected to soil-pipes or drain ... ... ... ... ... | 275 | 313 | 588 | 312 | 291 | 603 | 138 | 265 | 403 | 12 | 117 | 129 | 737 | 986 | 1,723 |
| Water-closets choked and defective ... | 57 | 140 | 197 | 31 | 120 | 151 | 32 | 145 | 177 | 2 | 11 | 13 | 122 | 416 | 538 |
| New water-closets ... ... ... | 18 | 76 | 94 | 4 | 31 | 35 | 7 | 106 | 113 | ... | ... | ... | 29 | 213 | 242 |
| Defective soil-pipes ... ... ... | 57 | 10 | 67 | 61 | 13 | 74 | 28 | 27 | 55 | 3 | 1 | 4 | 149 | 51 | 200 |
| Defective ash-closets ... ... ... | ... | 16 | 16 | 2 | 64 | 66 | 2 | 53 | 55 | ... | 6 | 6 | 4 | 139 | 143 |
| New ash-closets ... ... ... | 5 | 4 | 9 | ... | 6 | 6 | ... | 4 | 4 | 3 | 4 | 7 | 8 | 18 | 26 |
| Privies and ashpits defective ... | 17 | 166 | 183 | 10 | 58 | 68 | 6 | 61 | 67 | ... | 144 | 144 | 33 | 429 | 462 |
| New privies and ashpits ... ... | ... | ... | ... | ... | ... | ... | ... | 2 | 2 | ... | 1 | 1 | ... | 3 | 3 |
| Offensive accumulations, &c. ... .. | 2 | 7 | 9 | 8 | 29 | 37 | 3 | 19 | 22 | 4 | 6 | 10 | 17 | 61 | 78 |
| Swine and other animals kept ... | 2 | 30 | 32 | 2 | 23 | 25 | 2 | 4 | 6 | ... | 6 | 6 | 6 | 63 | 69 |
| Defective water-spouts, causing damp in rooms ... ... ... ... | 6 | 3 | 9 | 5 | 3 | 8 | 4 | 1 | 5 | ... | ... | ... | 15 | 7 | 22 |
| Water supply ... ... ... ... | 9 | 24 | 33 | 9 | 29 | 38 | 3 | 38 | 41 | 1 | 24 | 25 | 22 | 115 | 137 |
| Smoke nuisance ... .. ... ... | 9 | 1 | 10 | 5 | ... | 5 | 5 | 1 | 6 | 1 | ... | 1 | 20 | 2 | 22 |
| Other nuisances ... ... ... ... | 15 | 17 | 32 | 22 | 2 | 24 | 15 | 14 | 29 | 7 | 5 | 12 | 59 | 38 | 97 |
| TOTAL ... ... ... | 539 | 1,254 | 1,793 | 514 | 871 | 1,385 | 263 | 1,113 | 1,376 | 36 | 414 | 450 | 1,352 | 3,652 | 5,004 |

* By "Informal Notice" is to be understood any communication made verbally or by letter. "Formal Notices" are those served under the Statutes.

During the past year 570 connections have been made with the existing common sewers.

It has not been found necessary to resort to Magisterial proceedings for enforcing the abatement of nuisance on any occasion during the year.

WILLIAM T. CLARKE, *Chief Inspector of Nuisances.*

## TABLE XVII.

### 1885.—RAINFALL, MEAN TEMPERATURE, &c.

| 1st Quarter. | | | 2nd Quarter. | | | 3rd Quarter. | | | 4th Quarter. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Week ended. | Rainfall. Inches. | Mean Temp. Deg. Fahr. | Week ended. | Rainfall. Inches. | Mean Temp. Deg. Fahr. | Week ended. | Rainfall. Inches. | Mean Temp. Deg. Fahr. | Week ended | Rainfall. Inches. | Mean Temp. Deg. Fahr. |
| 1885. | | | | | | | | | | | |
| Jan. 10... | 0·06 | 39·0 | April 4... | 0·33 | 33·3 | July 4... | 0·02 | 58·6 | Oct. 10... | 0·36 | 45·6 |
| „ 17... | 0·84 | 36·6 | „ 11... | 0·78 | 40·0 | „ 11... | 0·49 | 63·5 | „ 17... | 1·15 | 45·6 |
| „ 24... | 0·06 | 35·1 | „ 18... | 0·06 | 41·8 | „ 18... | 0·12 | 55·8 | „ 24... | 0·98 | 44·1 |
| „ 31... | 0·42 | 43·8 | „ 25... | 0·53 | 49·5 | „ 25... | 0·02 | 62·6 | „ 31... | 0·89 | 43·1 |
| Feb. 7... | 0·14 | 40·1 | May 2... | 0·46 | 50·6 | Aug. 1... | 0·03 | 58·0 | Nov. 7... | 0·40 | 45·1 |
| „ 14... | 0·40 | 45·0 | „ 9... | 0·94 | 41·6 | „ 8... | 2·72 | 56·1 | „ 14... | 0·06 | 44·5 |
| „ 21... | 0·12 | 34·8 | „ 16... | 0·50 | 44·6 | „ 15... | 0·39 | 56·5 | „ 21... | 0·14 | 38·5 |
| „ 28... | 0·15 | 47·3 | „ 23... | 0·90 | 45·3 | „ 22... | 0·11 | 55·3 | „ 28... | 0·90 | 44·1 |
| March 7... | 0·81 | 39·0 | „ 30... | 0·52 | 51·6 | „ 29... | 0·01 | 54·6 | Dec. 5... | 0·13 | 43·5 |
| „ 14... | 0·01 | 40·3 | June 6... | 0·00 | 59·3 | Sept. 5... | 0·46 | 53·3 | „ 12... | 0·40 | 29·8 |
| „ 21... | 0·19 | 41·3 | „ 13... | 0·52 | 55·3 | „ 12... | 0·80 | 55·8 | „ 19... | 0·07 | 44·0 |
| „ 28... | 0·31 | 41·0 | „ 20... | 0·10 | 57·0 | „ 19... | 0·32 | 56·5 | „ 26... | 0·06 | 39·8 |
| | | | „ 27... | 0·90 | 52·9 | „ 26... | 0·28 | 50·1 | Jan. 2, '86 | ? | ? |
| | | | | | | Oct. 3... | 0·50 | 50·1 | | | |
| Total... | 3·51 | Mean 40·2 | Total... | 6·54 | Mean 47·9 | Total... | 6·27 | Mean 56·2 | Total... | 5·54 | Mean 42·3 |

Total Rainfall during the Year 1885 = 21·86 inches.

Mean Temperature during the Year 1885 = 46·6 deg. Fahr.

The information for the above Table is courteously supplied by Wm. Lyall, Esq., Librarian of the Literary and Philosophical Society.

# APPENDIX B.

## TABLE I.

### Deaths from all Causes and at all Ages in Newcastle-upon-Tyne, during the 10 years ended December, 1883, according to the Classification of the Registrar General.

| CAUSE OF DEATH. | Under 1 Year. | 1 Year and under 5. | 5 years and under 20 | 20 years & under 40. | 40 years & under 60. | 60 years & under 80. | 80 years & upwards. | TOTAL. | % of Deaths from each cause to Total Deaths from all ages & causes during the 10 years. |
|---|---|---|---|---|---|---|---|---|---|
| I.—ZMYOTIC DISEASES. | | | | | | | | | |
| 1—*Miasmatic Diseases.* | | | | | | | | | |
| Small-pox ... ... ... | 15 | 13 | 53 | 33 | 14 | 2 | ... | 130 | 0·38 |
| Measles... ... ... ... | 100 | 362 | 27 | 2 | ... | ... | ... | 491 | 1·42 |
| Scarlet Fever (Scarlatina) ... | 77 | 824 | 434 | 19 | 1 | 2 | ... | 1,357 | 3·94 |
| Diphtheria ... ... ... | 6 | 56 | 25 | 6 | 4 | 2 | ... | 99 | 0·29 |
| Quinsy ... ... ... ... | 3 | 3 | ... | 1 | ... | ... | ... | 7 | 0·02 |
| Croup ... ... ... ... | 35 | 167 | 24 | ... | ... | ... | ... | 226 | 0·66 |
| Whooping Cough ... ... | 321 | 457 | 44 | 1 | ... | ... | ... | 823 | 2·39 |
| Typhus ... ... .. ... | 1 | 1 | 27 | 53 | 63 | 13 | ... | 158 | 0·46 |
| Enteric or Typhoid Fever ... | 5 | 35 | 140 | 161 | 56 | 25 | 1 | 423 | 1·23 |
| Simple Continued Fever ... | 3 | 17 | 23 | 11 | 7 | 2 | ... | 63 | 0·18 |
| Erysipelas ... ... ... | 43 | 11 | 7 | 24 | 35 | 45 | 5 | 170 | 0·49 |
| Puerperal Fever (Metria) ... | ... | ... | 2 | 21 | 5 | ... | ... | 28 | 0·08 |
| Carbuncle ... ... ... | 1 | 1 | 1 | ... | 6 | 6 | 2 | 17 | 0·05 |
| Influenza ... ... ... | 4 | 4 | 2 | 2 | ... | 1 | ... | 13 | 0·04 |
| Dysentery ... ... ... | 6 | 1 | 2 | 8 | 24 | 16 | 3 | 60 | 0·17 |
| Diarrhœa ... ... ... | 953 | 384 | 22 | 22 | 50 | 129 | 12 | 1,572 | 4·56 |
| Simple Cholera ... ... | 21 | 3 | 4 | 2 | 5 | 5 | ... | 40 | 0·12 |
| Ague ... ... ... ... | ... | ... | 1 | 1 | 1 | ... | ... | 3 | 0·01 |
| Remittent Fever ... ... | 1 | 11 | 7 | ... | ... | ... | ... | 19 | 0·06 |
| Rheumatism ... ... ... | ... | 1 | 27 | 36 | 25 | 26 | 1 | 116 | 0·34 |
| Other Zymotic Diseases ... | 12 | 16 | 22 | 19 | 10 | 4 | ... | 83 | 0·24 |
| 2.—*Enthetic Diseases.* | | | | | | | | | |
| Syphilis ... ... ... | 151 | 19 | 1 | 30 | 9 | 2 | ... | 212 | 0·61 |
| Stricture of Urethra ... .. | ... | ... | ... | ... | 2 | 4 | ... | 6 | 0·02 |
| Hydrophobia ... ... ... | ... | ... | 3 | ... | ... | 1 | ... | 4 | 0·01 |
| Glanders ... ... ... | ... | 1 | ... | ... | ... | ... | ... | 1 | ... |
| 3.—*Dietic Diseases.* | | | | | | | | | |
| Privation ... ... ... | 52 | 10 | 1 | 3 | 7 | 5 | ... | 78 | 0·23 |
| Want of Breast-milk ... ... | 52 | ... | ... | ... | ... | ... | ... | 52 | 0·15 |
| Purpura and Scurvy ... ... | ... | 2 | 1 | 2 | 1 | ... | ... | 6 | 0·02 |
| Alcoholism { Delirium Trems. | .. | ... | ... | 14 | 17 | 4 | ... | 35 | 0·10 |
| Alcoholism { Imtemperance... | ... | 1 | ... | 40 | 62 | 19 | 1 | 123 | 0·36 |
| 4.—*Parasitic Diseases.* | | | | | | | | | |
| Thrush ... ... ... ... | 42 | 1 | ... | ... | ... | ... | ... | 43 | 0·12 |
| Carried forward... ... | 1,904 | 2,401 | 900 | 511 | 404 | 313 | 25 | 6,458 | 18·75 |

## TABLE. I.—CONTINUED.

### DEATHS FROM ALL CAUSES AND AT ALL AGES IN NEWCASTLE-UPON-TYNE, DURING THE 10 YEARS ENDED DECEMBER, 1883, ACCORDING TO THE CLASSIFICATION OF THE REGISTRAR GENERAL.

| CAUSE OF DEATH. | Under 1 year. | 1 year and under 5. | 5 years and under 20 | 20 years & under 40. | 40 years & under 60. | 60 years & under 80. | 80 years & upwards. | TOTAL. | % of Deaths from each cause to Total Deaths from all ages & causes during the 10 years. |
|---|---|---|---|---|---|---|---|---|---|
| Brought forward ... | 1,904 | 2,401 | 900 | 511 | 404 | 313 | 25 | 6,458 | 18·75 |
| II.—CONSTITUTIONAL DISEASES. | | | | | | | | | |
| 1.—*Diathetic Diseases.* | | | | | | | | | |
| Gout ... ... ... ... | ... | ... | 1 | ... | 2 | 8 | ... | 11 | 0·03 |
| Dropsy ... ... ... ... | 2 | 15 | 7 | 15 | 36 | 22 | 2 | 99 | 0·29 |
| Cancer ... ... ... ... | 1 | 4 | 9 | 91 | 320 | 191 | 11 | 627 | 1·82 |
| Cancrum Oris (Noma) ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... |
| Mortification ... ... ... | ... | 1 | 1 | 3 | 15 | 25 | 5 | 50 | 0·15 |
| 2.—*Tubercular Diseases.* | | | | | | | | | |
| Scrofula ... ... ... | 97 | 221 | 204 | 53 | 23 | 2 | ... | 600 | 1·74 |
| Tabes Mesenterica ... ... | 390 | 379 | 81 | 13 | 2 | ... | 1 | 866 | 2·51 |
| Phthisis ... ... ... | 36 | 74 | 514 | 1,718 | 898 | 107 | 1 | 3,348 | 9·71 |
| Hydrocephalus ... ... | 81 | 77 | 11 | 4 | ... | ... | ... | 173 | 0·50 |
| III.—LOCAL DISEASES. | | | | | | | | | |
| 1.—*Diseases of Nervous System.* | | | | | | | | | |
| Cephalitis ... ... ... | 7 | 14 | 7 | 4 | 4 | 1 | ... | 37 | 0·11 |
| Apoplexy ... ... ... | 2 | ... | 6 | 55 | 253 | 342 | 31 | 689 | 2·00 |
| Paralysis ... ... ... | ... | 5 | 8 | 60 | 239 | 465 | 52 | 829 | 2·40 |
| Insanity ... ... ... | ... | 1 | 4 | 2 | 2 | 5 | 1 | 15 | 0·04 |
| Chorea ... ... ... ... | ... | 2 | ... | ... | 1 | ... | ... | 3 | 0·01 |
| Epilepsy ... ... ... | 4 | 1 | 32 | 35 | 36 | 13 | ... | 121 | 0·35 |
| Convulsions ... ... ... | 1,405 | 366 | 26 | 12 | 4 | 1 | ... | 1,814 | 5·26 |
| Brain Disease, &c. ... ... | 263 | 344 | 203 | 150 | 182 | 149 | 4 | 1,295 | 3·76 |
| 2.—*Diseases of Circulatory System.* | | | | | | | | | |
| Pericarditis ... ... ... | 1 | ... | 5 | 6 | 3 | 2 | ... | 17 | 0·05 |
| Aneurism ... ... ... | 1 | ... | ... | 18 | 43 | 10 | ... | 72 | 0·21 |
| Heart Diseases, &c. ... ... | 7 | 7 | 119 | 326 | 705 | 676 | 45 | 1,885 | 5·47 |
| 3.—*Diseases of Respiratory System.* | | | | | | | | | |
| Laryngitis ... ... ... | 12 | 58 | 15 | 17 | 11 | 6 | ... | 119 | 0·35 |
| Bronchitis ... ... ... | 961 | 775 | 72 | 95 | 453 | 782 | 88 | 3,226 | 9·36 |
| Pleurisy ... ... ... | 7 | 3 | 17 | 24 | 17 | 13 | 2 | 83 | 0·24 |
| Pneumonia ... ... ... | 248 | 331 | 99 | 204 | 232 | 129 | 11 | 1,254 | 3·62 |
| Asthma... ... ... ... | 9 | 3 | 6 | 19 | 44 | 79 | 6 | 166 | 0·48 |
| Lung Diseases, &c. ... ... | 67 | 55 | 28 | 78 | 98 | 70 | 6 | 402 | 1·16 |
| Carried forward ... ... | 5,505 | 5,137 | 2,375 | 3,513 | 4,028 | 3,411 | 291 | 24,260 | 70·37 |

## TABLE I.—CONTINUED.

### DEATHS FROM ALL CAUSES AND AT ALL AGES IN NEWCASTLE-UPON-TYNE DURING THE 10 YEARS ENDDE DECEMBER, 1883, ACCORDING TO THE CLASSIFICATION OF THE REGISTRAR GENERAL.

| CAUSE OF DEATH. | Under 1 year. | 1 year and under 5. | 5 years and under 20 | 20 years & under 40. | 40 years & under 60. | 60 years & under 80. | 80 years & upwards. | TOTAL. | % of Deaths from each cause to Total Deaths from all ges & causes during the 10 years. |
|---|---|---|---|---|---|---|---|---|---|
| Brought forward ... | 5,505 | 5,137 | 2,375 | 3,513 | 4,028 | 3,411 | 291 | 24,260 | 70·37 |
| III.—LOCAL DISEASES.—*Continued.* | | | | | | | | | |
| 4.—*Diseases of Digestive System.* | | | | | | | | | |
| Gastritis ... ... ... | 6 | 1 | 3 | 11 | 22 | 22 | 1 | 66 | 0·19 |
| Enteritis ... ... ... | 67 | 17 | 25 | 13 | 14 | 18 | ... | 154 | 0·45 |
| Peritonitis ... ... ... | 9 | 6 | 36 | 82 | 37 | 16 | 2 | 188 | 0·55 |
| Ascites ... ... ... ... | ... | 1 | 4 | 6 | 5 | 11 | ... | 27 | 0·08 |
| Ulceration of Intestines ... | 6 | 2 | 1 | 2 | 3 | 3 | 1 | 18 | 0·05 |
| Hernia ... ... ... ... | 3 | ... | 1 | 8 | 19 | 19 | ... | 50 | 0·15 |
| Ileus ... ... ... ... | ... | ... | ... | 1 | ... | 1 | ... | 2 | 0·01 |
| Intussusception ... ... | 4 | 2 | 3 | 4 | 5 | 3 | 1 | 22 | 0·06 |
| Stricture of Intestines ... | ... | ... | ... | 1 | 5 | 5 | ... | 11 | 0·03 |
| Fistula ... ... ... ... | ... | ... | 1 | 4 | 7 | 2 | ... | 14 | 0·04 |
| Stomach Disease, &c.... ... | 14 | 12 | 3 | 13 | 37 | 39 | 2 | 120 | 0·35 |
| Pancreas Disease, &c. ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... |
| Hepatitis ... ... ... | 2 | 1 | 1 | 17 | 33 | 19 | ... | 73 | 0·21 |
| Jaundice ... ... ... | 43 | 2 | 1 | 5 | 8 | 14 | ... | 73 | 0·21 |
| Liver Disease, &c. ... ... | 8 | 5 | 5 | 88 | 242 | 147 | 4 | 499 | 1·42 |
| Spleen Disease, &c. ... ... | ... | 1 | 1 | 5 | 4 | 3 | ... | 14 | 0·04 |
| 5.—*Diseases of Urinary System.* | | | | | | | | | |
| Nephritis ... ... ... | 3 | 26 | 19 | 4 | 6 | 2 | ... | 60 | 0·17 |
| Ischuria ... ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Bright's Disease (Nephria) ... | ... | 6 | 15 | 46 | 64 | 41 | ... | 172 | 0·50 |
| Diabetes ... ... ... | ... | ... | 7 | 21 | 13 | 3 | 1 | 45 | 0·13 |
| Calculus (Stone) ... ... | ... | ... | 1 | 1 | 3 | 6 | ... | 11 | 0·03 |
| Cystitis... ... ... ... | ... | ... | ... | 6 | 13 | 21 | 1 | 41 | 0·12 |
| Kidney Disease, &c. ... ... | 4 | 10 | 18 | 66 | 66 | 51 | 5 | 220 | 0·64 |
| 6.—*Diseases of Reproductive System.* | | | | | | | | | |
| Ovarian Dropsy ... ... | ... | ... | 1 | 16 | 9 | 5 | ... | 31 | 0·09 |
| Uterus Disease, &c. ... ... | ... | 1 | 1 | 21 | 32 | 14 | ... | 69 | 0·20 |
| 7.—*Diseases of Locomotive System.* | | | | | | | | | |
| Synovitis (Arthritis) ... ... | ... | ... | ... | ... | 1 | 1 | ... | 2 | 0·01 |
| Joint Disease, &c. ... ... | 2 | 7 | 39 | 22 | 11 | 4 | ... | 85 | 0·25 |
| 8.—*Diseases of Integumentary System.* | | | | | | | | | |
| Phlegmon ... ... ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... |
| Ulcer ... ... ... ... | 2 | 1 | 1 | 10 | 16 | 16 | 1 | 47 | 0·14 |
| Skin Disease, &c. ... ... | 12 | 4 | 2 | 1 | 1 | 1 | ... | 21 | 0·06 |
| Carried forward .. | 5,690 | 5,242 | 2,564 | 3,989 | 4,704 | 3,898 | 310 | 26,397 | 76·55 |

## TABLE I.—CONTINUED.

DEATHS FROM ALL CAUSES AND AT ALL AGES IN NEWCASTLE-UPON-TYNE DURING THE 10 YEARS ENDED DECEMBER, 1883, ACCORDING TO THE CLASSIFICATION OF THE REGISTRAR GENERAL.

| CAUSE OF DEATH. | Under 1 year. | 1 year and under 5. | 5 years and under 20 | 20 years & under 40. | 40 years & under 60. | 60 years & under 80. | 80 years & upwards. | TOTAL. | % of Deaths from each cause to Total Deaths from all ages & causes during the 10 years. |
|---|---|---|---|---|---|---|---|---|---|
| Brought forward | 5,690 | 5,242 | 2,564 | 3,989 | 4,704 | 3,898 | 310 | 26,397 | 76·55 |
| IV.—DEVELOPMENTAL DISEASES. | | | | | | | | | |
| 1.—*Diseases of Children.* | | | | | | | | | |
| Premature Birth | 724 | 1 | ... | ... | ... | ... | ... | 725 | 2·10 |
| Cyanosis | 14 | ... | ... | ... | ... | ... | ... | 14 | 0·04 |
| Spina Bifida | 33 | 1 | 1 | 1 | ... | ... | ... | 36 | 0·10 |
| Other Malformations | 41 | 3 | 1 | ... | ... | ... | ... | 45 | 0·13 |
| Teething | 194 | 198 | ... | ... | ... | ... | ... | 392 | 1·14 |
| 2.—*Diseases of Adults.* | | | | | | | | | |
| Paramenia | ... | ... | ... | 2 | ... | ... | ... | 2 | 0·01 |
| Childbirth (see Puerperal Fever) | 42 | ... | 18 | 197 | 26 | ... | ... | 283 | 0·82 |
| 3.—*Diseases of Old People.* | | | | | | | | | |
| Old Age | ... | ... | ... | ... | 23 | 939 | 635 | 1,597 | 4·63 |
| 4.—*Diseases of Nutrition.* | | | | | | | | | |
| Atrophy and Debility | 1,916 | 214 | 24 | 15 | 32 | 96 | 11 | 2,308 | 6·69 |
| V.—VIOLENT DEATHS, &c. | | | | | | | | | |
| 1.—*Accident or Negligence.* | | | | | | | | | |
| Fractures and Contusions | 4 | 29 | 80 | 190 | 155 | 83 | 11 | 552 | 1·60 |
| Wounds Gunshot | ... | ... | 1 | 4 | 2 | ... | ... | 7 | 0·02 |
| Cut, Stab | ... | ... | ... | 2 | 4 | 6 | ... | 12 | 0·03 |
| Burns and Scalds | 2 | 51 | 23 | 15 | 11 | 10 | 2 | 114 | 0·33 |
| Poison | 4 | 5 | 7 | 15 | 6 | 2 | ... | 39 | 0·11 |
| Drowning | 10 | 5 | 38 | 51 | 32 | 7 | 1 | 144 | 0·42 |
| Suffocation | 181 | 4 | 1 | 2 | 7 | 3 | ... | 198 | 0·57 |
| Otherwise | 10 | ... | 6 | 4 | 9 | 5 | 2 | 36 | 0·10 |
| 2.—*Homicide.* | | | | | | | | | |
| Murder and Manslaughter | 9 | 1 | 2 | 9 | 6 | ... | ... | 27 | 0·08 |
| 3.—*Suicide.* | | | | | | | | | |
| Wounds Gunshot | ... | ... | ... | 4 | 1 | ... | ... | 5 | 0·01 |
| Cut, Stab | .. | ... | ... | 7 | 7 | 3 | .. | 17 | 0·05 |
| Poison | ... | ... | 2 | 10 | 8 | 3 | ... | 23 | 0·07 |
| Drowning | ... | ... | ... | 2 | 6 | 1 | ... | 9 | 0·03 |
| Hanging | ... | ... | 2 | 7 | 18 | 11 | ... | 38 | 0·11 |
| Otherwise | 1 | ... | ... | ... | 1 | 2 | ... | 4 | 0·01 |
| 4.—*Execution.* | | | | | | | | | |
| Hanging | ... | ... | ... | 1 | ... | ... | ... | 1 | ... |
| Violent Deaths (not classed) | 26 | 23 | 15 | 50 | 39 | 28 | 2 | 183 | 0·53 |
| Sudden Deaths (cause unascertained | 19 | 3 | 5 | 20 | 45 | 36 | 4 | 132 | 0·38 |
| Causes not specified or ill-defined | 287 | 97 | 71 | 166 | 240 | 261 | 18 | 1,140 | 3·31 |
| Total | 9,207 | 5,877 | 2,861 | 4,763 | 5,382 | 5,394 | 996 | 34,480 | 99·97 |

## SUMMARIES.

| | No. of Deaths. | % of Deaths from each Order to Total Deaths from all ages and all causes during the 10 years. |
|---|---|---|
| Miasmatic Diseases | 5,898 | 17·13 |
| Enthetic Diseases | 223 | 0·64 |
| Dietic Diseases | 294 | 0·86 |
| Parasitic Diseases | 43 | 0·12 |
| Diathetic Diseases | 788 | 2·29 |
| Tubercular Diseases | 4,987 | 14·46 |
| Diseases of Nervous System | 4,803 | 13·93 |
| Diseases of Circulatory System | 1,974 | 5·73 |
| Diseases of Respiratory System | 5,250 | 15·21 |
| Diseases of Digestive System | 1,332 | 3·84 |
| Diseases of Urinary System | 549 | 1·59 |
| Diseases of Reproductive System | 100 | 0·29 |
| Diseases of Locomotive System | 87 | 0·26 |
| Diseases of Integumentary System | 69 | 0·20 |
| Diseases of Children | 1,212 | 3·51 |
| Diseases of Adults | 285 | 0·83 |
| Diseases of Old People | 1,597 | 4·63 |
| Diseases of Nutrition | 2,308 | 6·69 |
| Accident or Negligence | 1,102 | 3·18 |
| Murder and Manslaughter | 27 | 0·08 |
| Suicide | 96 | 0·28 |
| Hanging, Violent Deaths (not classed)<br>Sudden Deaths (causes unascertained)<br>Causes not specified, &c. | 1,456 | 4·22 |
| Total | 34,480 | 99·97 |

| | Percentages of Deaths at each Ætal Period to Total No. of Deaths during the 10 years. |
|---|---|
| Under 1 Year | 26·71 |
| 1 Year and under 5 | 17·04 |
| 5 Years and under 20 | 8·30 |
| 20 Years and under 40 | 13·81 |
| 40 Years and under 60 | 15·61 |
| 60 Years and under 80 | 15·64 |
| 80 Years and upwards | 2·89 |

## TOTAL DEATHS.

| Year. | No. of Deaths. |
|---|---|
| 1874 | 3,956 |
| 1875 | 3,587 |
| 1876 | 3,183 |
| 1877 | 3,179 |
| 1878 | 3,423 |
| 1879 | 3,458 |
| 1880 | 3,335 |
| 1881 | 3,164 |
| 1882 | 3,403 |
| 1883 | 3,792 |
| Total | 34,480 |

## TABLE II.

Return of the Chief Causes of Death in proportion to the Total Deaths in each of the Seven Ætal Periods during the Ten Years ended 29th December, 1883.*

| Cause of Death. | No. of Deaths. | Percentage of Deaths to Total Deaths, under 1 Year. |
|---|---|---|
| *First Period*—Under 1 year of age. | | |
| Atrophy and Debility | 1,916 | 20·81 |
| Convulsions | 1,405 | 15·26 |
| Bronchitis | 961 | 10·44 |
| Diarrhœa | 953 | 10·36 |
| Premature Birth | 724 | 7·86 |
| Tabes Mesenterica | 390 | 4·24 |
| Whooping Cough | 321 | 3·49 |
| Causes not specified, or ill-defined | 287 | 3·12 |
| Brain Disease, etc. | 263 | 2·86 |
| Pneumonia | 248 | 2·69 |
| Teething | 194 | 2·11 |
| Suffocation | 181 | 1·97 |
| Syphilis | 151 | 1·64 |
| Measles | 100 | 1·09 |
| Scrofula | 97 | 1·05 |
| 60 other Diseases, etc., causing less than 1 per cent. each of the total mortality* | 1,016 | 11·01 |
| Total Deaths | 9,207 | 100·00 |

| *Second Period*—1 year and under 5 years of age. | No. of Deaths. | Percentage to Total Deaths at age of 1 Year and under 5 Years. |
|---|---|---|
| Scarlet Fever | 824 | 14·02 |
| Bronchitis | 775 | 13·19 |
| Whooping Cough | 457 | 7·78 |
| Diarrhœa | 384 | 6·58 |
| Tabes Mesenterica | 379 | 6·45 |
| Convulsions | 366 | 6·23 |
| Measles | 362 | 6·16 |
| Brain Disease, etc. | 344 | 5·85 |
| Pneumonia | 331 | 5·63 |
| Scrofula | 221 | 3·76 |
| Atrophy and Debility | 214 | 3·64 |
| Teething | 198 | 3·37 |
| Croup | 167 | 2·84 |
| Causes not specified, or ill-defined | 97 | 1·65 |
| Hydrocephalus | 77 | 1·31 |
| Phthisis | 74 | 1·26 |
| 62 other Diseases, etc., causing less than 1 per cent. each of the total mortality* | 607 | 10·28 |
| Total Deaths | 5,877 | 100·00 |

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* See Appendix B, Table I.

## TABLE II.—CONTINUED.

### RETURN OF THE CHIEF CAUSES OF DEATH IN PROPORTION TO THE TOTAL DEATHS.*

| CAUSE OF DEATH. | No. of Deaths. | Percentage to Total Deaths at age of 5 Years and under 20 Years. |
|---|---|---|
| *Third Period*—5 years and under 20 years of age. | | |
| Phthisis ... ... ... ... ... ... | 514 | 17·97 |
| Scarlet Fever ... ... ... ... ... | 434 | 15·17 |
| Scrofula ... ... ... ... ... ... | 204 | 7·13 |
| Brain Disease, etc.... ... ... ... ... | 203 | 7·10 |
| Enteric or Typhoid Fever ... ... ... | 140 | 4·89 |
| Heart Disease, etc. ... ... ... ... | 119 | 4·16 |
| Pneumonia ... ... ... ... ... ... | 99 | 3·46 |
| Fractures and Contusions... ... ... ... | 80 | 2·80 |
| Tabes Mesenterica ... ... ... ... ... | 81 | 2·83 |
| Bronchitis ... ... ... ... .. ... | 72 | 2·52 |
| Causes not specified, or ill-defined ... ... | 71 | 2·48 |
| Small-pox ... ... ... ... ... ... | 53 | 1·85 |
| Whooping Cough ... ... ... ... ... | 44 | 1·54 |
| Joint Disease, etc. ... ... ... ... ... | 39 | 1·36 |
| Drowning (Accidents) ... ... ... ... | 38 | 1·33 |
| Peritonitis ... ... ... ... ... ... | 36 | 1·26 |
| Epilepsy ... ... ... .. ... ... | 32 | 1·12 |
| 70 other Diseases, etc., causing less than 1 per cent. each of total mortality*... ... ... | 602 | 21·03 |
| Total Deaths ... ... ... | 2,861 | 100·00 |
| | No. of Deaths. | Percentage to Total Deaths at age of 20 Years and under 40 Years. |
| *Fourth Period*—20 years and under 40 years of age. | | |
| Phthisis ... ... ... ... ... ... | 1,718 | 36·07 |
| Heart Disease, etc. ... ... ... ... | 326 | 6·89 |
| Pneumonia ... ... ... ... ... ... | 204 | 4·28 |
| Childbirth ... ... ... ... ... ... | 197 | 4·14 |
| Fractures and Contusions ... ... ... | 190 | 3·99 |
| Causes not specified, or ill-defined ... ... | 166 | 3·49 |
| Enteric or Typhoid Fever ... ... ... | 161 | 3·38 |
| Brain Disease, etc. ... ... ... ... | 150 | 3·15 |
| Bronchitis ... ... ... ... ... ... | 95 | 1·99 |
| Cancer ... ... ... .. .. ... | 91 | 1·91 |
| Liver Disease, etc. ... ... ... ... ... | 88 | 1·85 |
| Peritonitis ... .. ... ... ... ... | 82 | 1·72 |
| Lung Disease, etc. ... ... ... ... ... | 78 | 1·64 |
| Kidney „ ... ... ... ... ... | 66 | 1·39 |
| Paralysis ... ... ... ... ... ... | 60 | 1·26 |
| Apoplexy ... ... ... ... ... ... | 55 | 1·15 |
| Typhus Fever ... ... ... ... .. | 53 | 1·11 |
| Scrofula ... ... ... ... ... .. | 53 | 1·11 |
| Drowning (Accidents) ... ... ... .. | 51 | 1·07 |
| Violent Deaths (not classed) ... ... ... | 50 | 1·05 |
| 76 other Diseases, etc., causing less than 1 per cent. each of total mortality* ... ... | 829 | 17·36 |
| Total Deaths ... ... ... | 4,763 | 100·00 |

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* See Appendix B, Table I,

## TABLE II.—CONTINUED.

### RETURN OF THE CHIEF CAUSES OF DEATH IN PROPORTION TO THE TOTAL DEATHS.*

| CAUSE OF DEATH. | No. of Deaths. | Percentage to Total Deaths at age of 40 Years and under 60 Years. |
|---|---|---|
| *Fifth Period*—40 years and under 60 years of age. | | |
| Phthisis | 898 | 16·69 |
| Heart Disease, etc. | 705 | 13·10 |
| Bronchitis | 453 | 8·42 |
| Cancer | 320 | 5·95 |
| Apoplexy | 253 | 4·70 |
| Liver Disease, etc, | 242 | 4·50 |
| Causes not specified, or ill-defined | 240 | 4·46 |
| Paralysis | 239 | 4·44 |
| Pneumonia | 232 | 4·31 |
| Brain Disease, etc. | 182 | 3·38 |
| Fractures and Contusions | 155 | 2·88 |
| Lung Disease, etc. | 98 | 1·82 |
| Kidney „ | 66 | 1·23 |
| Bright's Disease (Nephria) | 64 | 1·19 |
| Typhus Fever | 63 | 1·17 |
| Alcoholism (Intemperance) | 62 | 1·15 |
| Enteric or Typhoid Fever | 56 | 1·04 |
| 76 other Diseases, etc., causing less than 1 per cent. each of total mortality* | 1,054 | 19·57 |
| Total Deaths | 5,382 | 100·00 |

| *Sixth Period*—60 years and under 80 years of age. | No. of Deaths. | Percentage to Total Deaths at age of 60 Years and under 80 Years. |
|---|---|---|
| Old Age | 939 | 17·41 |
| Bronchitis | 782 | 14·50 |
| Heart Disease, etc. | 676 | 12·53 |
| Paralysis | 465 | 8·62 |
| Apoplexy | 342 | 6·34 |
| Causes not specified, or ill-defined | 261 | 4·84 |
| Cancer | 191 | 3·54 |
| Brain Disease, etc. | 149 | 2·76 |
| Liver „ | 147 | 2·73 |
| Diarrhœa | 129 | 2·39 |
| Pneumonia | 129 | 2·39 |
| Phthisis | 107 | 1·98 |
| Atrophy and Debility | 96 | 1·78 |
| Fractures and Contusions | 83 | 1·54 |
| Asthma | 79 | 1·46 |
| Lung Disease, etc. | 70 | 1·30 |
| 70 other Diseases, etc., causing less than 1 per cent. each of total mortality* | 749 | 13·89 |
| Total Deaths | 5,394 | 100·00 |

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* See Appendix B, Table I.

## TABLE II.—CONTINUED.

### RETURN OF THE CHIEF CAUSES OF DEATH IN PROPORTION TO THE TOTAL DEATHS.*

| CAUSE OF DEATH. | No. of Deaths. | Percentage to Total Deaths at age of 80 Years and Upwards. |
|---|---|---|
| *Seventh Period*—80 years of age and upwards. | | |
| Old Age ... ... ... ... ... ... | 635 | 63·76 |
| Bronchitis ... ... ... ... ... ... | 88 | 8·84 |
| Paralysis ... ... ... ... ... ... | 52 | 5·22 |
| Heart Disease, etc.... ... ... ... ... | 45 | 4·53 |
| Apoplexy ... ... ... ... ... ... | 31 | 3·11 |
| Causes not specified, or ill-defined ... ... | 18 | 1·81 |
| Diarrhœa ... ... ... ... ... ... | 12 | 1·20 |
| Cancer ... ... ... .. ... ... | 11 | 1·10 |
| Pneumonia ... ... ... ... ... ... | 11 | 1·10 |
| Atrophy and Debility ... ... ... ... | 11 | 1·10 |
| Fractures and Contusions ... ... ... | 11 | 1·10 |
| 30 other Diseases, etc., causing less than 1 per cent. each of total mortality*... ... ... | 71 | 7·13 |
| Total Deaths ... ... ... | 996 | 100·00 |

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* See Appendix B, Table I.

# TABLE III.

A Return of Deaths from the undermentioned Diseases (all ages) during 10 years, 1874–1883, according to the classification of the Registrar General.

| CAUSE OF DEATH. | 1874. | 1875. | 1876. | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Small-pox ... ... ... | ... | ... | 1 | 1 | ... | ... | ... | 10 | 57 | 61 | 130 |
| Measles ... ... ... | 18 | 47 | 29 | 20 | 17 | 90 | 14 | 35 | 12 | 209 | 491 |
| Scarlet Fever (Scarlatina)... | 259 | 76 | 48 | 72 | 220 | 282 | 142 | 52 | 83 | 123 | 1,357 |
| Whooping Cough ... ... | 104 | 63 | 44 | 84 | 87 | 82 | 129 | 70 | 108 | 52 | 823 |
| Typhus ... ... ... | 22 | 14 | 23 | 9 | 10 | 6 | ... | 20 | 30 | 24 | 158 |
| Enteric or Typhoid Fever... | 73 | 69 | 37 | 20 | 52 | 33 | 30 | 38 | 30 | 41 | 423 |
| Diarrhœa ... ... ... | 234 | 202 | 151 | 120 | 218 | 61 | 172 | 149 | 160 | 105 | 1,572 |
| Cancer ... ... ... | 54 | 58 | 52 | 60 | 58 | 54 | 77 | 70 | 78 | 66 | 627 |
| Scrofula ... ... ... | 3 | 24 | 24 | 36 | 97 | 89 | 87 | 72 | 73 | 95 | 600 |
| Tabes Mesenterica ... ... | 143 | 122 | 93 | 86 | 68 | 69 | 92 | 66 | 61 | 66 | 866 |
| Phthisis ... ... ... | 348 | 324 | 353 | 337 | 356 | 336 | 327 | 294 | 314 | 359 | 3,348 |
| Apoplexy ... ... ... | 60 | 72 | 75 | 86 | 65 | 79 | 54 | 65 | 60 | 73 | 689 |
| Paralysis ... ... ... | 93 | 82 | 62 | 103 | 77 | 89 | 84 | 78 | 92 | 69 | 829 |
| Convulsions ... ... ... | 270 | 244 | 213 | 157 | 139 | 166 | 170 | 155 | 153 | 147 | 1,814 |
| Brain Disease, etc. ... ... | 170 | 150 | 126 | 136 | 106 | 119 | 104 | 116 | 139 | 129 | 1,295 |
| Heart Diseases, etc.... ... | 207 | 211 | 186 | 179 | 185 | 201 | 167 | 175 | 188 | 186 | 1,885 |
| Bronchitis ... ... ... | 358 | 354 | 311 | 310 | 292 | 385 | 334 | 299 | 269 | 314 | 3,226 |
| Pneumonia ... ... ... | 148 | 120 | 101 | 133 | 91 | 114 | 114 | 111 | 127 | 195 | 1,254 |
| Liver Disease, etc. ... ... | 49 | 49 | 58 | 62 | 60 | 45 | 40 | 44 | 46 | 46 | 499 |
| Bright's Disease (Nephria).. | 9 | 18 | 13 | 13 | 19 | 11 | 16 | 25 | 22 | 26 | 172 |
| Kidney Disease, etc. ... | 18 | 28 | 15 | 19 | 22 | 20 | 18 | 23 | 20 | 37 | 220 |
| Premature Birth ... ... | 68 | 68 | 78 | 67 | 75 | 84 | 81 | 78 | 67 | 79 | 725 |
| Teething ... ... ... | 22 | 28 | 48 | 29 | 42 | 41 | 33 | 46 | 45 | 58 | 392 |
| Childbirth (*see* Puerp. Fever) | 36 | 25 | 28 | 26 | 27 | 23 | 31 | 29 | 28 | 30 | 283 |
| Old Age ... ... ... | 142 | 141 | 125 | 164 | 157 | 204 | 180 | 181 | 145 | 158 | 1,597 |
| Atrophy and Debility ... | 241 | 263 | 211 | 208 | 219 | 210 | 220 | 224 | 258 | 254 | 2,308 |
| *Accident or Negligence*— | | | | | | | | | | | |
| Fractures and Contusions | 101 | 66 | 69 | 39 | 35 | 36 | 45 | 38 | 60 | 63 | 552 |
| Drowning... ... ... | 20 | 30 | 19 | 36 | 12 | 2 | 9 | 2 | 6 | 8 | 144 |
| Suffocation ... ... | 7 | 15 | 35 | 18 | 30 | 25 | 23 | 8 | 26 | 11 | 198 |
| *Suicide*— | | | | | | | | | | | |
| Wounds { Gunshot ... | ... | ... | ... | 1 | 1 | 1 | ... | ... | ... | 2 | 5 |
| Cut, Stab ... | 2 | 3 | 1 | 1 | ... | 3 | ... | 3 | 3 | 1 | 17 |
| Poison ... ... ... | 5 | ... | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 3 | 23 |
| Drowning... ... ... | ... | ... | 2 | 1 | 1 | ... | 2 | 1 | 1 | 1 | 9 |
| Hanging ... ... ... | 5 | 4 | 3 | ... | 4 | 4 | 8 | 2 | 2 | 6 | 38 |
| Otherwise... ... ... | 1 | ... | ... | ... | 1 | ... | 1 | ... | ... | 1 | 4 |
| Causes not specified, or ill-defined ... ... ... | 73 | 89 | 73 | 74 | 140 | 111 | 124 | 149 | 127 | 180 | 1,140 |